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ABSTRACT

Lists are given of buildings, equipment and supplies necessary to establish and maintain a complete program of vocational education in agriculture for high school students, out-of-school youth, and adults in the community. Quantities and guidelines are specified. Photographs and diagrammatic representations are also included. (FS)

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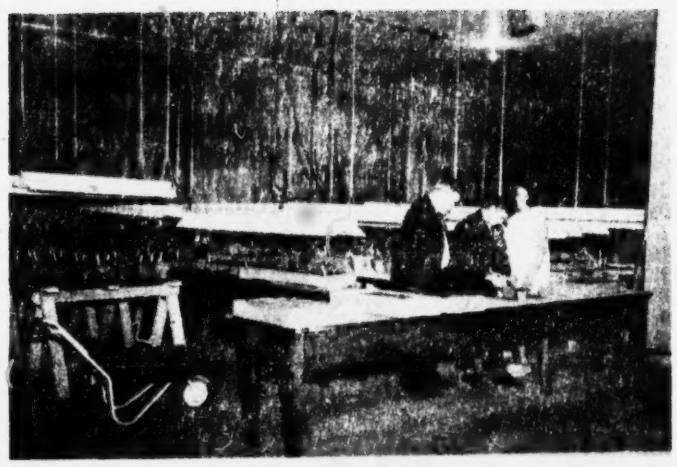
AGRICULTURAL SCIENCE



ORNAMENTAL HORTICULTURE

FACILITIES FOR VOCATIONAL AGRICULTURE DEPARTMENTS IN WEST VIRGINIA

1967

EF 003 778

CONSERVATION

AGRICULTURAL MECHANICS

WEST VIRGINIA
STATE BOARD OF EDUCATION
DIVISION OF VOCATIONAL-TECHNICAL EDUCATION
STATE CAPITOL
CHARLESTON, WEST VIRGINIA
25305

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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ED035229

FOREWORD

This publication is a revision of the Vocational Agriculture Standards revised and published in 1962. It has been developed to assist county boards of education, school administrators, and teachers of vocational agriculture in providing facilities for departments of vocational agriculture in West Virginia. The bulletin can serve as a basis for establishing new departments and be used as a guide for established departments to expand program and provide the necessary facilities and equipment for effective vocational instruction.

During the past year vocational agriculture teachers, supervisors, and teacher educators have suggested desirable changes needed in the lists of tools, equipment, and supplies. The revised lists represent the combined recommendations of all groups interested in providing the buildings, equipment, and supplies necessary to establish and maintain a complete program of vocational education in agriculture for high school students, out-of-school youth and adults in the community.

Guy E. Cain, Program Specialist, Vocational Agriculture, acted as chairman of the committee responsible for this publication. Special assistance was requested in preparing this revision from Carl S. Thomas, Program Specialist, Vocational Agriculture; Warren G. Kelly, Assistant Professor, Agricultural Education, West Virginia Univesity; Raymon Cunningham, County Vocational Supervisor, Ripley; Gerald Chadock, Vo-Ag teacher, Petersburg; Richard Glass, Vo-Ag teacher, Masontown; and David Smith, Vo-Ag teacher, Green Bank.

W. H. Wayman, State Supervisor
Vocational Agriculture

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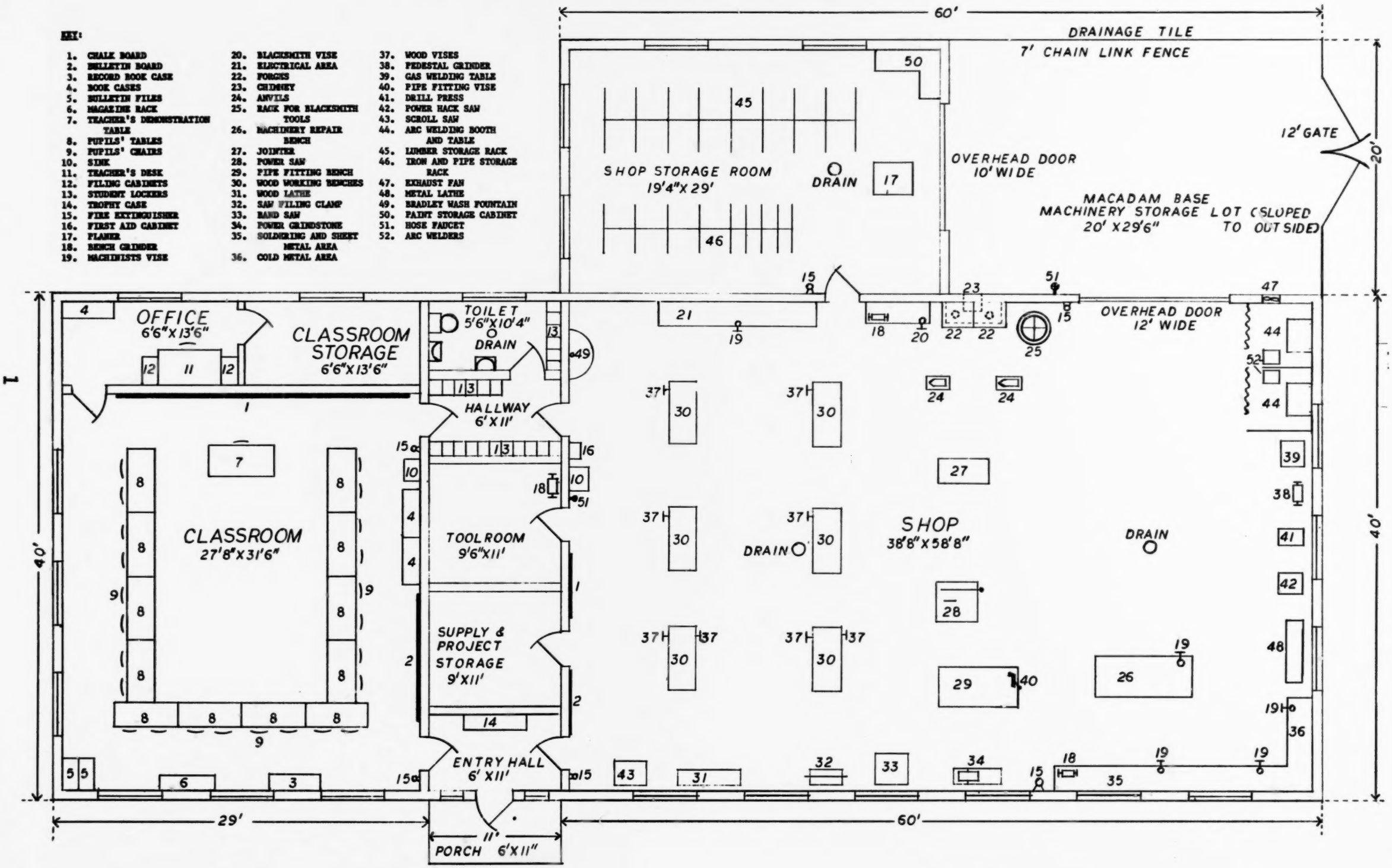
A Suggested Layout For Vocational Agriculture Classroom And Shop

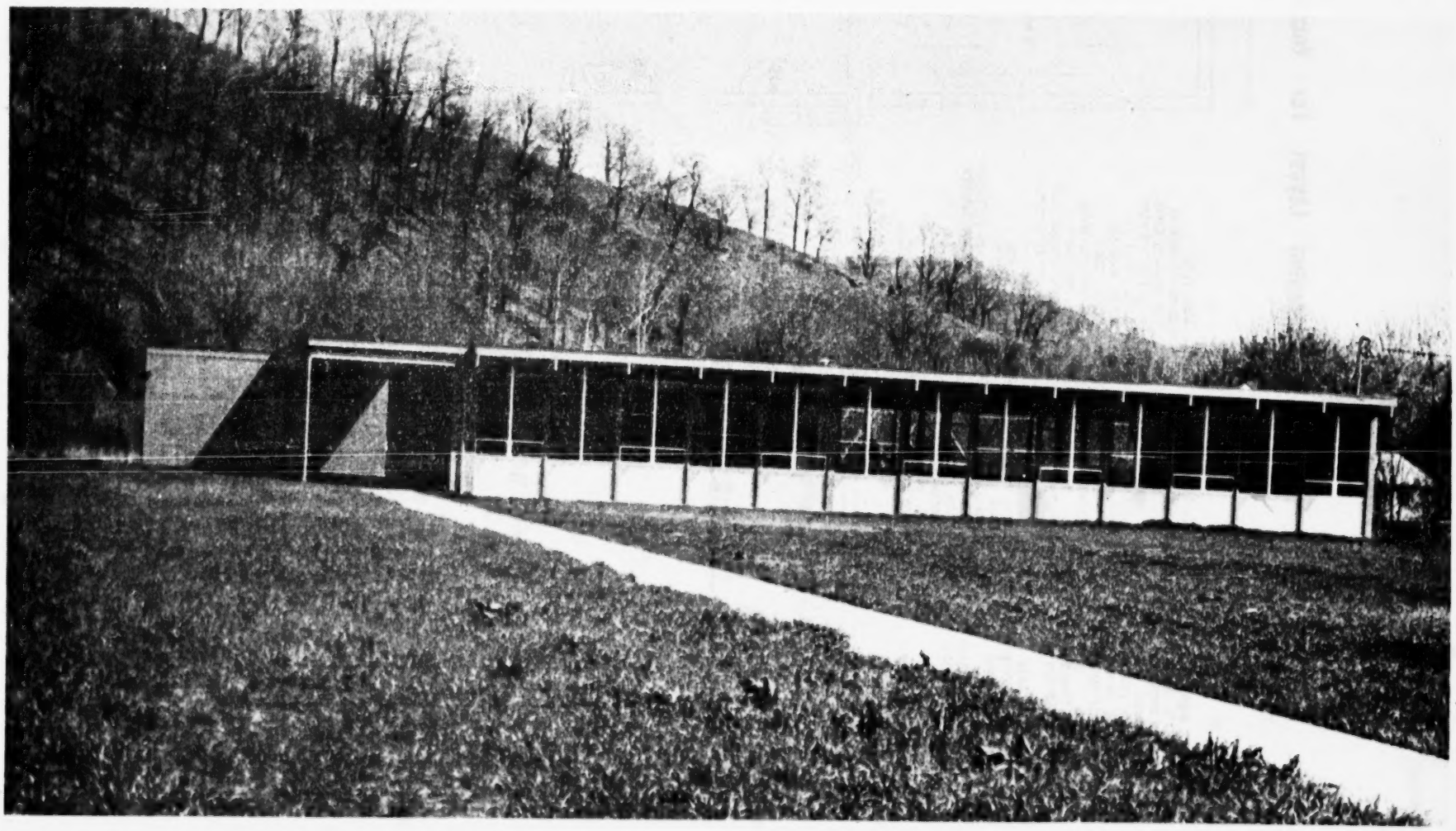
KEY:

1. CHALK BOARD
2. BULLETIN BOARD
3. RECORD BOOK CASE
4. BOOK CASES
5. BULLETIN FILES
6. MAGAZINE RACK
7. TEACHER'S DEMONSTRATION TABLE
8. PUPILS' TABLES
9. PUPILS' CHAIRS
10. SINK
11. TEACHER'S DESK
12. FILING CABINETS
13. STUDENT LOCKERS
14. TROPHY CASE
15. FIRE EXTINGUISHER
16. FIRST AID CABINET
17. FLASHER
18. BENCH GRINDER
19. MACHINISTS VISE
20. BLACKSMITH VISE
21. ELECTRICAL AREA
22. FORGES
23. CHIMNEY
24. ANVILS
25. RACK FOR BLACKSMITH TOOLS
26. MACHINERY REPAIR BENCH
27. JOINTER
28. POWER SAW
29. PIPE FITTING BENCH
30. WOOD WORKING BENCHES
31. WOOD LATHE
32. SAW FILING CLAMP
33. BAND SAW
34. POWER GRINDSTONE
35. SOLDERING AND SHEET METAL AREA
36. COLD METAL AREA
37. WOOD VISES
38. PEDESTAL GRINDER
39. GAS WELDING TABLE
40. PIPE FITTING VISE
41. DRILL PRESS
42. POWER HACK SAW
43. SCROLL SAW
44. ARC WELDING BOOTH AND TABLE
45. LUMBER STORAGE RACK
46. IRON AND PIPE STORAGE RACK
47. EXHAUST FAN
48. METAL LATHE
49. BRADLEY WASH FOUNTAIN
50. PAINT STORAGE CABINET
51. HOSE FAUCET
52. ARC WELDERS



ONE TEACHER DEPARTMENT AT HILLSBORO

TWO TEACHER DEPARTMENT AT WAYNE



VOCATIONAL AGRICULTURE FACILITIES

Factors influencing the location of the facilities include: Isolations from quiet areas of the building; location to provide easy delivery of instructional supplies, equipment and materials including farm machinery; location convenient to industrial arts or other vocational areas; and location which permits isolation from remainder of the building for after-school use.

1. Classroom:

   a. Size: Base preliminary determination of area upon allotment of 30 to 35 square feet per pupil, (Minimum 800 square feet). To more accurately determine area, trial room layouts should be made using scale templates representing furniture and equipment with scale drawings of floor and wall elevations.

   b. Capacity: 24 pupils.

   c. Location:

      (1) Convenient or direct access to shop and office.
      (2) Ground floor, convenient to a building entrance.
      (3) Permit maximum controlled natural light.

   d. Activities: Lecture; discussion; view slides, films, and other projected materials; wirte or draw on chalkboard and tables; display pupils' work; store instructional materials and supplies.

   e. Equipment and facilities:

      (1) Chalkboard: 20 to 24 linear feet, four feet wide; display and chart rail above.
      (2) Tackboard: As much as possible; minimum-eight linear feet; display and chart rail above. Locate one section adjacent to entrance.

      (3) Two-pupil tables (Minimum of 12; 24" x 60" and 30" high; see pp. 7-8) and chairs.
      (4) Teacher's desk and chair. (See pp. 7)
      (5) Demonstration table (24" x 60" and 36" high).
      (6) Storage:
         (a) Letter-size four-drawer file cabinet.
         (b) Legal-size four-drawer file cabinet (minimum of 2; pp. 9).
         (c) Magazine rack (see pp. 10).
         (d) Minimum of 40 linear feet of adjustable shelving.
         (e) Record book case (see pp. 11-12).

      (7) Duplex electrical outlets on all walls, if possible.
      (8) Facilities for light control to permit use of visual aids.

2. Agriculture mechanics shop:

   a. Size: Base preliminary determination of area on allotment of 100 to 125 square feet per pupil (Minimum, 2400 square feet). To more accurately determine area, trial room layouts should be made using scale templates representing furniture and equipment with scale drawings on floor and wall elevation.
   NOTE: The assistance of specialists in vocational agriculture should be secured in planning these facilities.

b. Capacity: 24 pupils

c. Location:

(1) Convenient access to classroom and instructor's office.
(2) Direct access to service drive.

d. Activities: Construct farm equipment; repair farm machinery; weld; finish and paint equipment; operate power equipment; store tools, raw materials, partially completed projects; etc.

e. Equipment and facilities:

(1) Varies with program offered in shop (see pp. 24-32).
(2) Chalkboard and tackboard: Six linear feet, each.
(3) Window sills should be at least 40 inches above the floor to permit installation of equipment along wall and electrical outlets above work benches.
(4) Floor or ceiling electrical grid system for 110 and 220 power to to various machines with master control switches.
(5) Overhead door from service drive (12 to 14 feet wide and 10 feet high).
(6) Storage for hand tools, consumable raw materials and supplies may be provided in separate storage room or in cabinets and racks within shop. Area required equivalent to storage room of 700 to 800 square feet.
(7) Fire extinguisher (Minimum of 3).
(8) Work benches - wooden (Minimum of 30 linear feet (see pp. 22).
(9) Work benches - metal (Minimum of 40 linear feet).
(10) Metal Storage Rack (see pp. 21).
(11) Lumber Storage Rack (see pp. 23).
(12) Floor drain near machinery repair area.
(13) Half circle wash fountain (Bradley) installed in shop.

3. Machinery Storage Lot

a. Size: 600 to 1,000 square feet.

b. Location: Convenient to shop entrance and service drive.

c. Equipment:

(1) Macadam base sloped for drainage.
(2) Surrounded by chain link fence at least 7 foot high.
(3) Double gate entrance 12 to 14 feet wide.

4. Instructor's office:

a. Size: 100 to 150 square feet.

b. Location:

(1) Convenient or direct access to shop and classroom.

c. Equipment and facilities:

(1) Teacher's desk and chair.

(2) One or two conference chairs.
(3) Storage:

(a) Letter-size four-drawer file cabinet (with lock).
(b) 20 to 30 linear feet of open or closed shelving.

(4) Minimum of two duplex electrical outlets.

5. Storage room:

a. Size: 100 to 150 square feet.

b. Location:

(1) Convenient or direct access to the classroom.
(2) Direct access to the office.

c. Activities: Storage of instructional supplies, equipment, materials, and visual aids.

d. Equipment and facilities:

(1) Adjustable shelving of various height and depth.

6. Toilet

a. Size: 50 to 100 square feet.

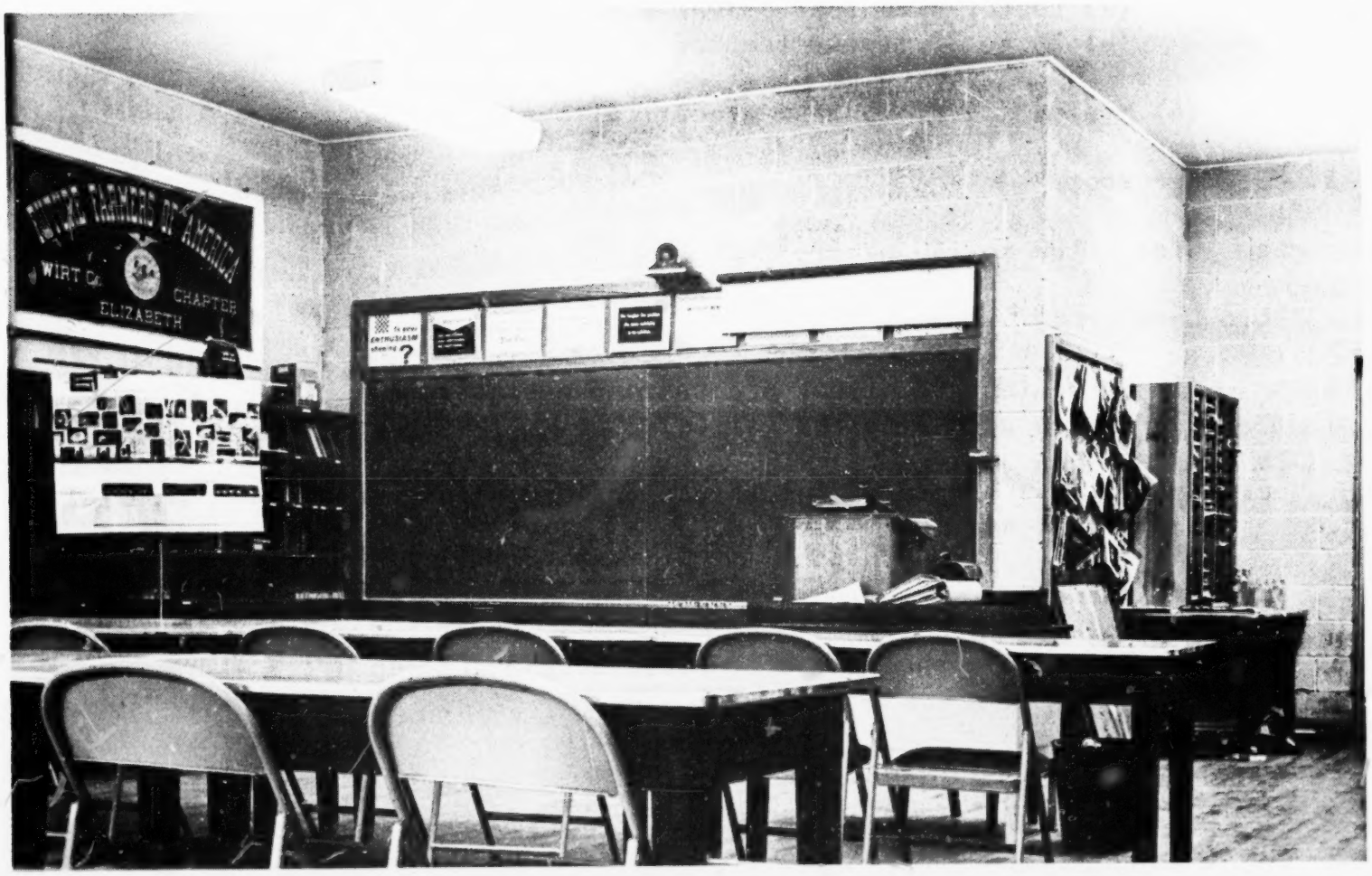
b. Location: Convenient to both shop and classroom.

c. Equipment:

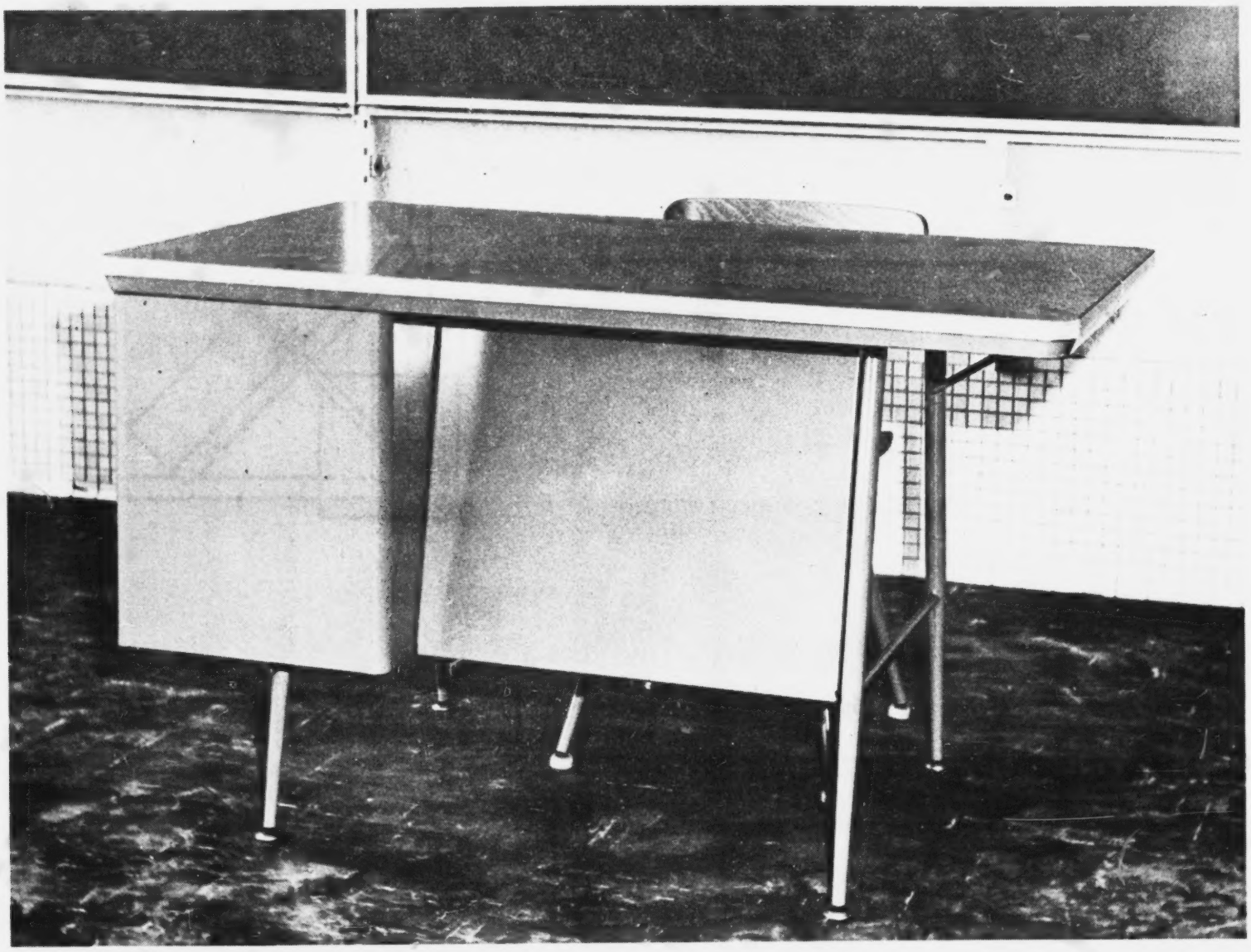
(1) Equipped with commode, urinal and wash basin.
(2) Wall mirror.
(3) Floor drain.
(4) Storage cabinet for cleaning supplies.
(5) May be of sufficient size to include student lockers.

NOTE: Refer to NCSC Guide for Planning School Plants and West Virginia Handbook on Planning School Plants for additional information on aspects common to other instructional areas.

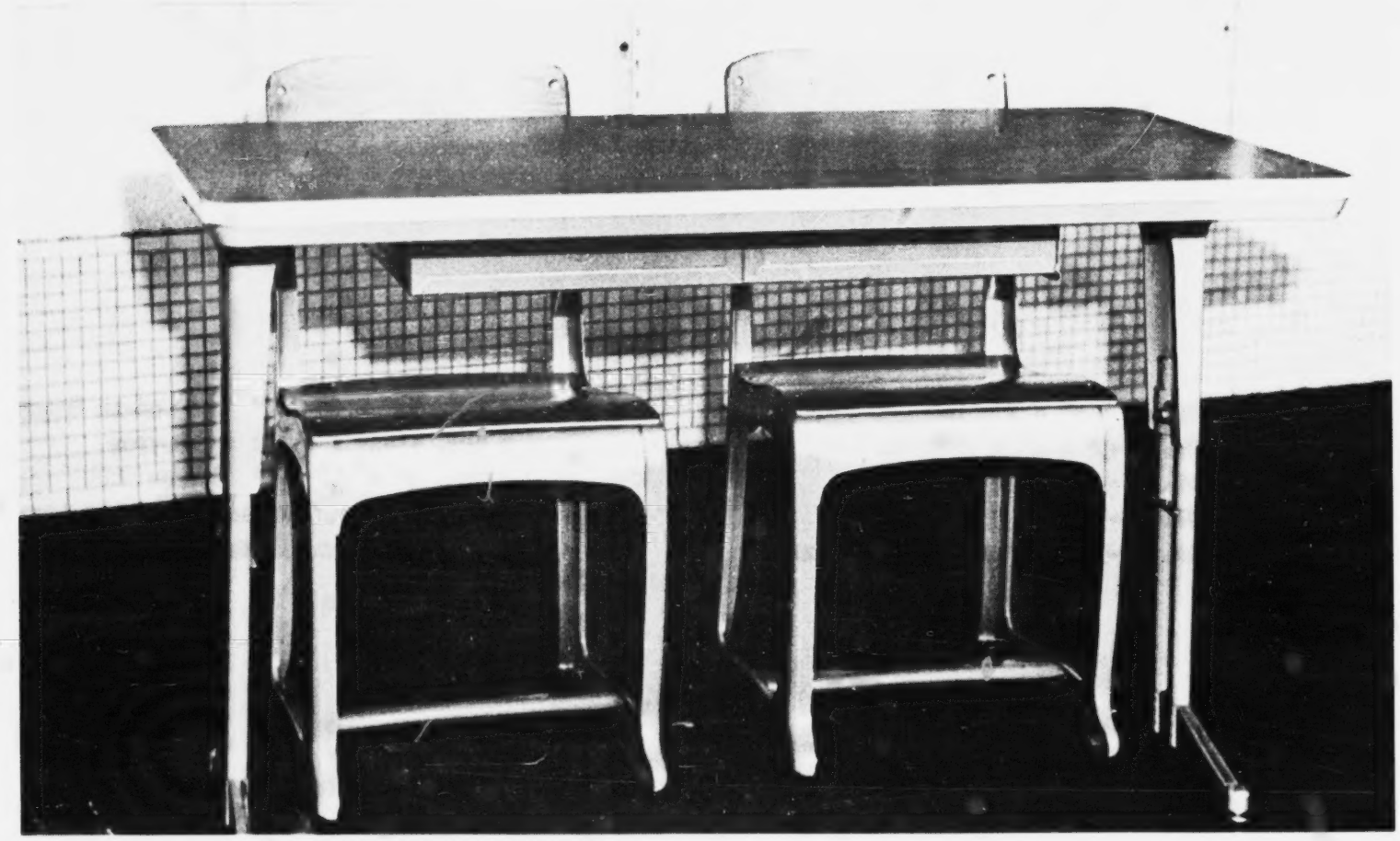
CLASSROOM



TEACHER'S DESK

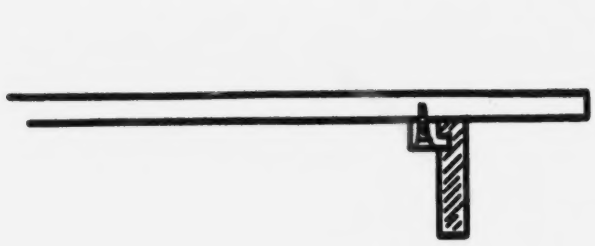


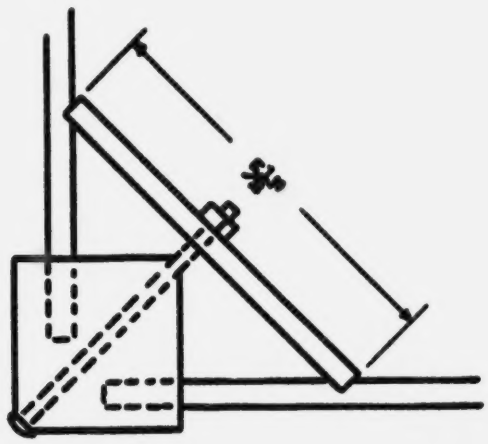
STUDENTS' TABLE & CHAIRS

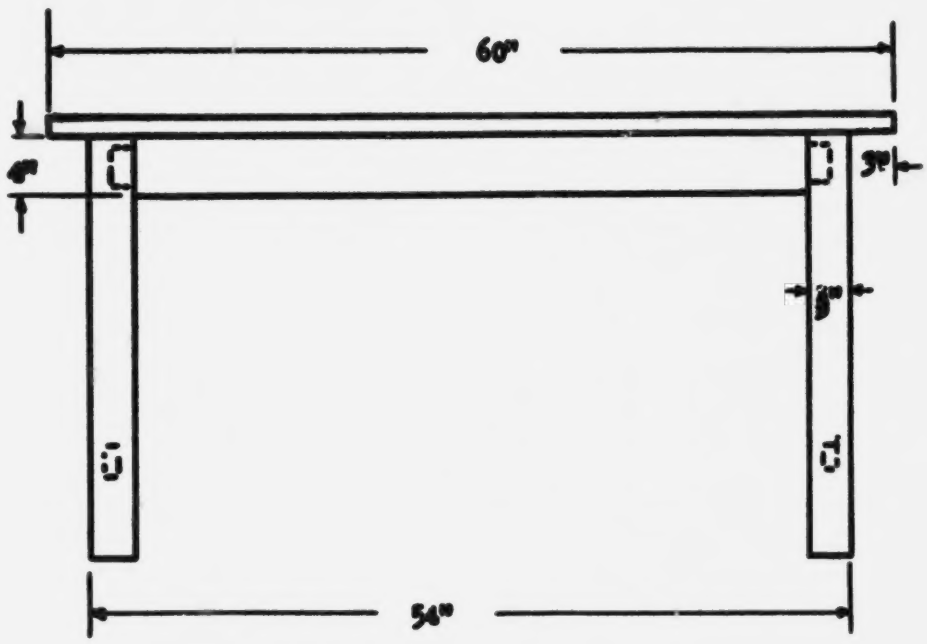


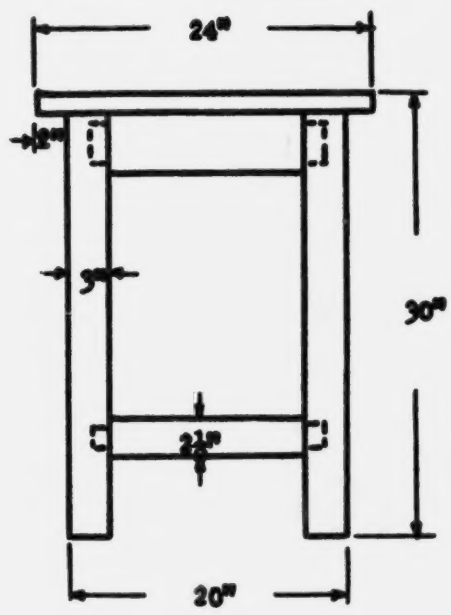
WEST VIRGINIA

VO-AG CLASSROOM TABLE





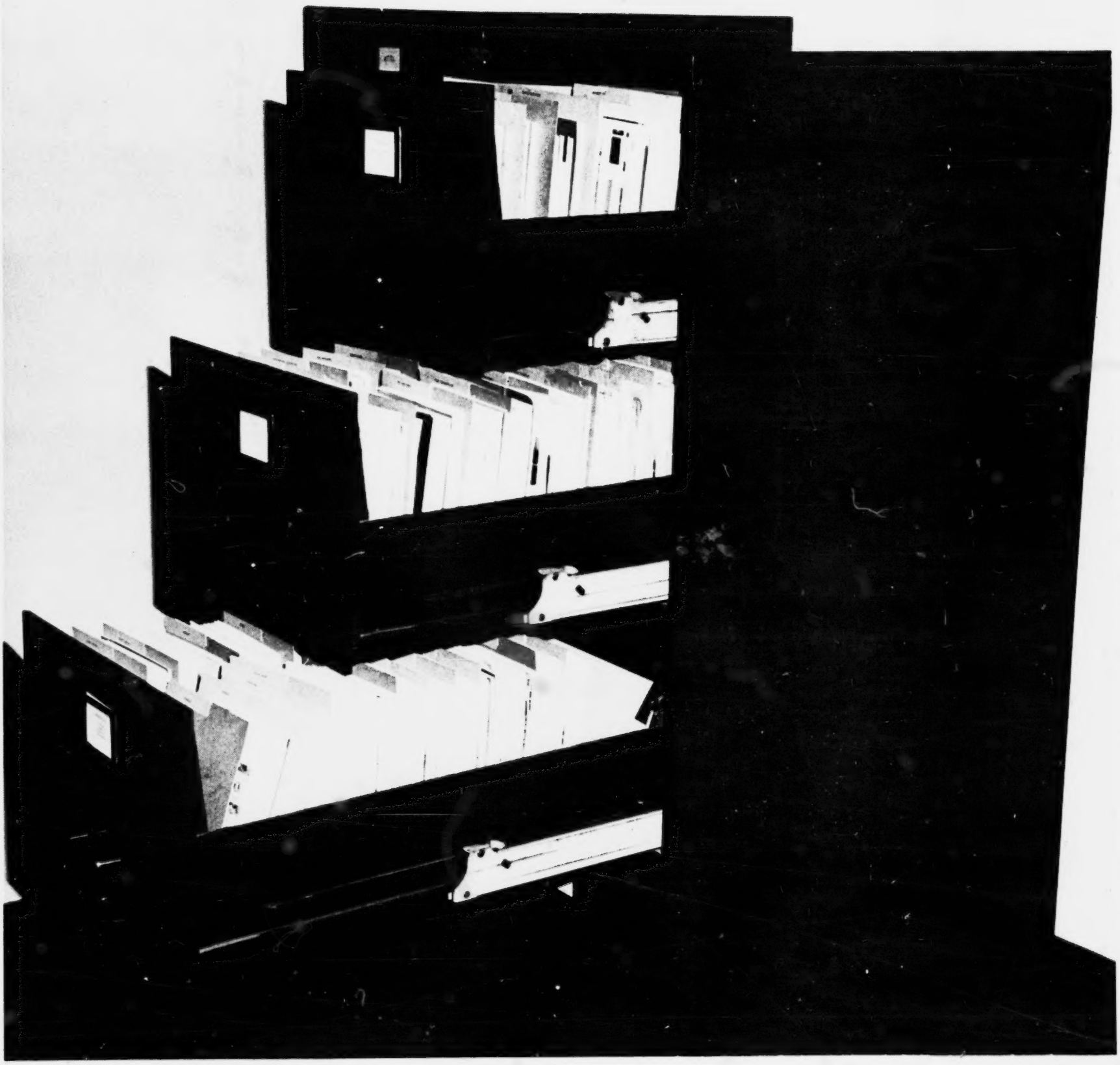




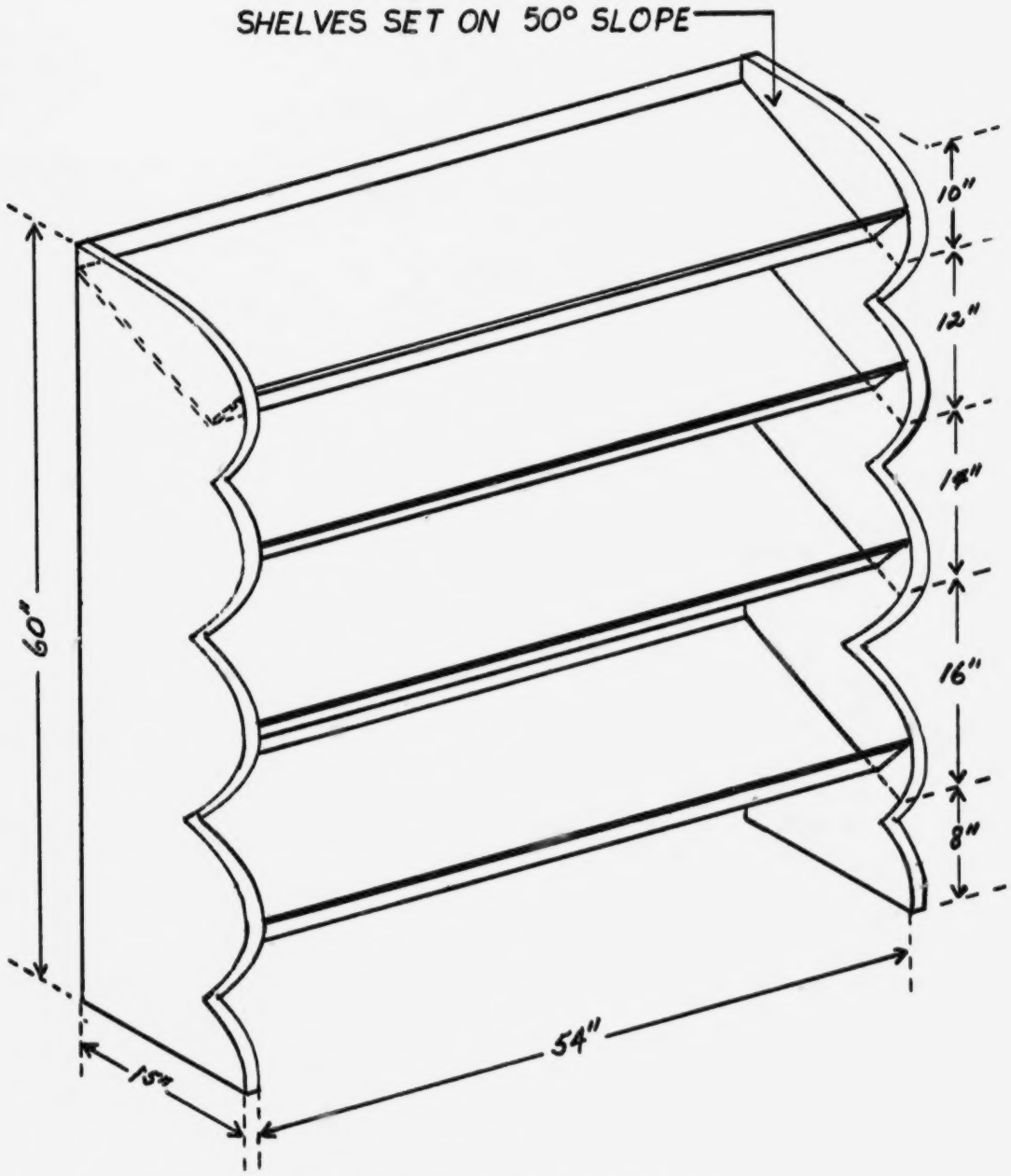
Bill of Material

3 pcs. 5' x 8" x 1" Top
2 pcs. 4'-5" x 4" x 1" Side Rail
2 pcs. 1'-5" x 4" x 1' End Raal
4 pcs. 2'-5" x 3" x 3" Legs
2 pcs. 1'-5" x 2½" x 1" End Braces
4 pcs. 5½" x 4" x 1" Leg Corner Brace
2 pcs. 1'-2" x 1½" x 1" Button
2 pcs. 4' x 1½" x 1" Button
4 - 3/8" x 5" Carriage Bolts for Legs
24 - 1½"-10 Flathead Wood Screws for Button

BULLETIN FILE



MAGAZINE RACK



BILL OF MATERIALS

2 PIECES - 3/4" x 15" x 60" PLYWOOD ENDS

4 PIECES - 3/4" x 16" x 54" PLYWOOD SHELVES

4 PIECES - 1/2" x 3 3/4" x 54" PLYWOOD FRONT OF SHELVES

1 PIECE - 1/4" x 48" x 55 1/2" HARDBOARD BACK

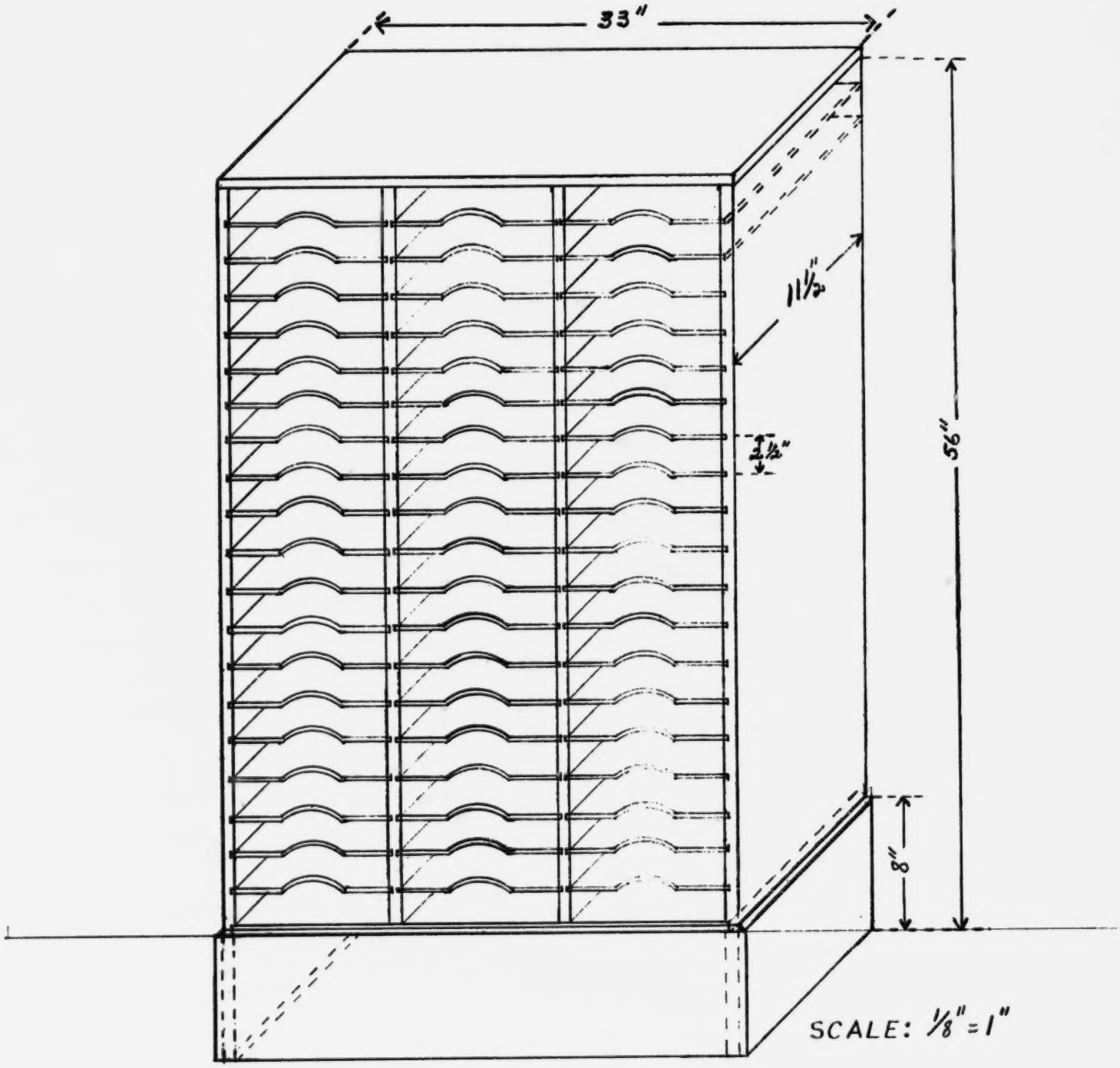
36 - NO. 9, 1 1/2" FLAT HEAD WOOD SCREWS

16 - NO. 7, 1" FLAT HEAD WOOD SCREWS

16 - NO. 5, 1 1/4" FLAT HEAD WOOD SCREWS

20 - NO. 5, 3/4" ROUND HEAD WOOD SCREWS

Vo-Ag Students Record Book Case



Bill Of Materials

2 PIECES 3/4" x 11 1/2" x 56" - SIDES

2 PIECES 3/4" x 11 1/2" x 42 1/4" - CENTER UPRIGHTS

1 PIECE 3/4" x 11 1/2" x 33" - TOP

1 PIECE 3/4" x 11 1/2" x 31 7/8" - BOTTOM SHELF

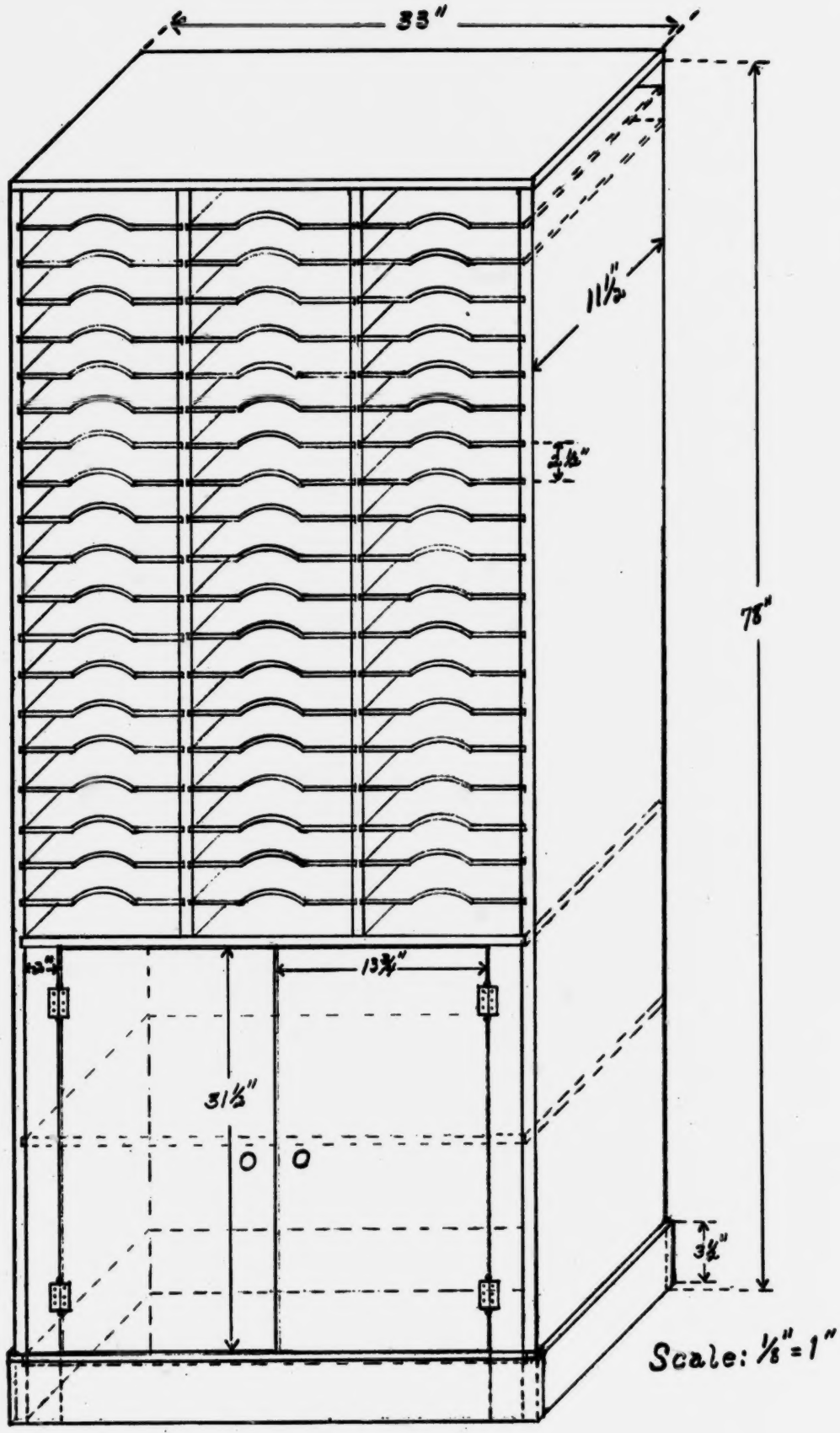
1 PIECE 3/4" x 8" x 35" - BASEBOARD

57 PIECES 1/8" x [illegible] x 11 1/2" - MASONITE FOR SHELVES

1 PIECE 1/8" x [illegible]" x 50" - MASONITE FOR BACK

1/8" x 3/4" FLAT MOLDING FOR ALL EDGES TO COVER DADO CUTS

Vo-Ag Students Record Book Case



Bill Of Materials

2 pieces 3/4" x 11 1/2" x 78" - sides
2 " 3/4" x 11 1/2" x 42 1/4" - center uprights
1 " 3/4" x 11 1/2" x 33" - Top
1 " 3/4" x 10 3/4" x 31 7/8" - Bottom shelf
1 " 3/4" x 19 3/4" x 31 7/8" - Center shelf
1 " 3/4" x 11 1/2" x 31 7/8" - Bottom of record book section
2 " 3/4" x 2" x 35" - Door facings on bottom section
2 " 3/4" x 13 3/4" x 31 1/2" - Doors

1 " 3/4" x 3 1/2" x 5' - Baseboard
57 " 1/8" x 10 3/8" x 11 1/2" - Masonite for shelves
1 " 1/8" x 33" x 78 3/4" - Masonite for back
2 pair 3/4" x 2 1/2" hinges
2 -- 3/4" round door knobs
2 -- Spring or magnet catches for doors
1/8" x 3/4" flat molding for all edges to cover dado cuts

EQUIPMENT FOR AGRICULTURAL SCIENCE CLASSES

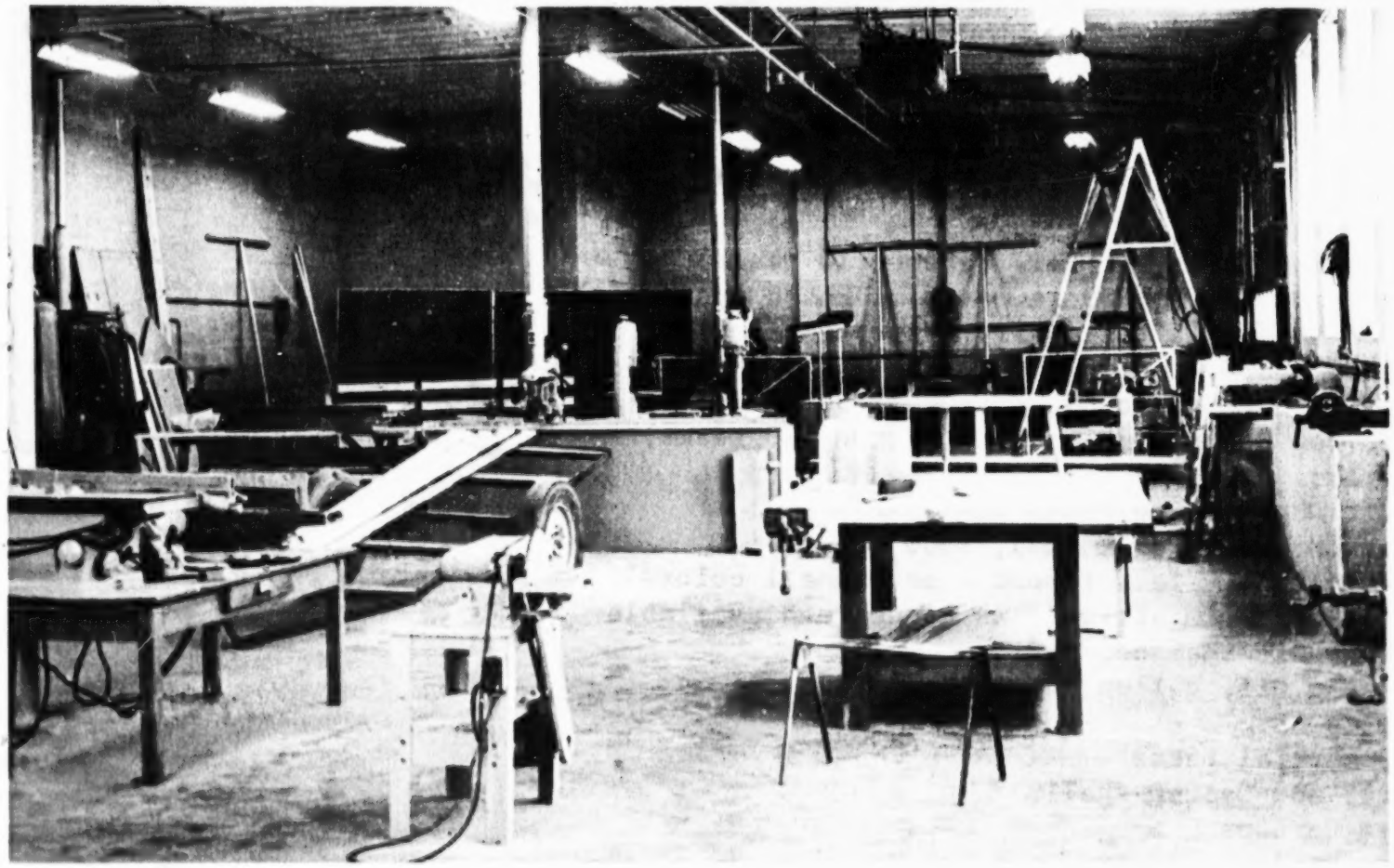
	Number Recommended	Number On Hand
Mimeograph Machine	1	
Camera-35 mm, Single Lens Reflex	1	
Camera-Twin Lens Reflex, 2¼ x 2¼	1	
Overhead Projector and Case	1	
Film Projector, 16 mm sound	1	
Film Projector, 35 mm for 2" x 2" slides & film strips	1	
Portable Screen, Matte Type, 60" x 60" with Keystone Eliminator	1	
Tape Recorder	1	
Record Player, 45 and 33	1	
Stapler and staples	1	
Pencil Sharpener	1	
Paper Punch, adjustable 1 to 4 hole	1	
Microscope	1	
Magnet Flannel Board - locally constructed	1	
Opaque Projector and accessories	1	
Portable Chalk Board, 4' x 6'	1	
Film Strip File Case, 400 size	1	
2" x 2" Slide File Case, 600 size	2	
Spirit Duplicator, portable - hand operated	1	
Portable Chart Board	1	
Egg Scales	1	
Egg Candler	1	
Folding Wire Exhibition Pen, 2 compartment	1	
Poultry Sticker and funnel	1	
Poultry Debeaker	1	
Milk Tester with accompanying supplies	1	
Mastitis Test Kit	1	
Dehorner - calf	1	
Dehorner - older animals	1	
Syringe - heavy duty 20cc and 40cc	1	
Scotch Combs, course, medium and fine	3	
Steel Curry Comb	1	
Rice Root Brushes, small and large	2	
Castrating Knife	1	
Skinning Knife	1	
Hoof Knife	1	
Horn Rasp	1	
Hoof Rasp	1	
Clipping Head for Shearmaster	1	
Shearmaster with shearing head	1	
Show Stick for cattle	2	
Halters, rope (to be made locally)	2	
Catching Hooks (to be made locally)	2	
Elastrator and supplies	1	
Dose Syringe, 4 oz.	1	
Graduate, 4 oz.	1	
Hand Shears	1	
Portable Shearing Platform (to be made locally)	1	

	Number Recommended	Number On Hand
Pig Teeth Nippers	1	
Hog Ringer	1	
Butchering Thermometer	1	
Boning Knife, 6"	1	
Butchering Knife, 8"	1	
Sticking Knife	1	
Bell Scraper	4	
Butchers Steel	1	
Meat Saw, 22"	1	
Hog Holder	1	
Ear Notcher for Swine	1	
Sheep Cards (assorted)	3	
Balling Gun	1	
Curing Boxes for Bacon (to be made locally)	4	
Hog Hooks (to be made locally)	4	
Gambrels (to be made locally)	4	
Show Hurdle (to be made locally)	2	
Soil Testing Outfit	1	
Soil Auger or Tube	1	
Hand Pruning Shears	8	
Pruning Saws (single cutting edge)	2	
Lopping Shears	2	
Pole Pruner	1	
Pruning Knife	2	
Rotary Duster	1	
Grafting Tool	1	
Knapsack Sprayer, 3 gallon	1	
Show Halter - dairy		
Junior Calf 12"	1	
Cow 18"	1	
Show Halter - beef		
Calf Size	1	
Yearling Size	1	
Cow Size	1	
Show Whip, 6 ft.	1	
Show Sticks	2	
Portable Show Pens (to be made locally)	2	
Gates for penning livestock (to be made locally)	8	

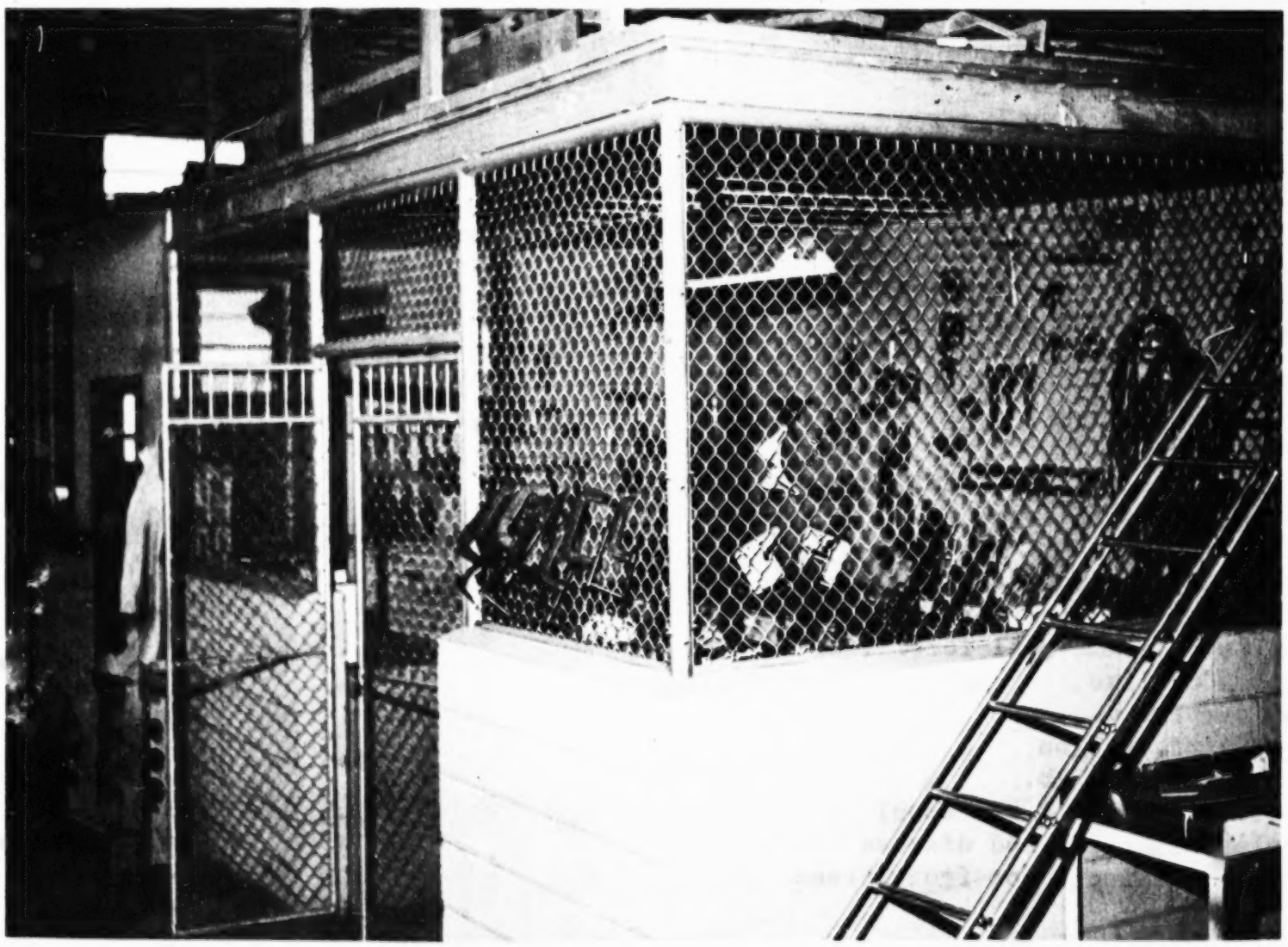
SUPPLIES FOR AGRICULTURAL SCIENCE CLASSES

	Number Recommended	Number On Hand
Mimeograph Stencils (1 quire)	1	
Mimeograph Paper, 16 lb. (carton, 10 reams)	1	
Roll Acetate Film, 30 ft. (for overhead projector)	1	
Kit of Materials for making transparencies	1	
Flannel Board Alpha set	1	
Stencils for Spirit Duplicator (100 in box)	1	
Paper for Spirit Duplicator (carton, 10 reams) 16 lbs.	1	
Spirit Duplicating Fluid (gal.)	1	
Newsprint Pad (18" x 24"), (500 sheets)	1	
Marking Pens - felt tipped - set of all colors	1 set	
Slides and film strips - as needed and available		
Cocanut Oil Shampoo, gallon	1	
Dressing Oil, gallon	1	
Samples of:		
Commercial feeds		
Grit and Oyster shells		
Egg Cartons		
Leg Bands		
Glass substitutes		
Insulating Materials		
Hardware Cloth		
Infra-red Bulbs		
Poultry Drugs		
Internal Parasites		
Samples of:		
Disease, parasite and fly		
Control Chemicals for Cattle		
Samples of:		
Standard Control remedies of internal and external parasites of sheep		
Specimens of internal and external parasites		
Samples of wool grades		
Hog rings, box	1	
Worm capsules, swine, box	1	
Stockinette, roll	1	
Samples of:		
Control remedies for internal and external parasites of swine		
Samples of:		
Meat Curing ingredients		
Refill for soil testing kit		
Samples of commercial fertilizer		
Samples of lime		
Soil samples		
Tree Paint, gallon	1	
Grafting Wax, 1 lb.	1	
Grafting Thread, 8 oz. spool	1	
Samples of insect and disease		
Control Chemicals for fruit trees		

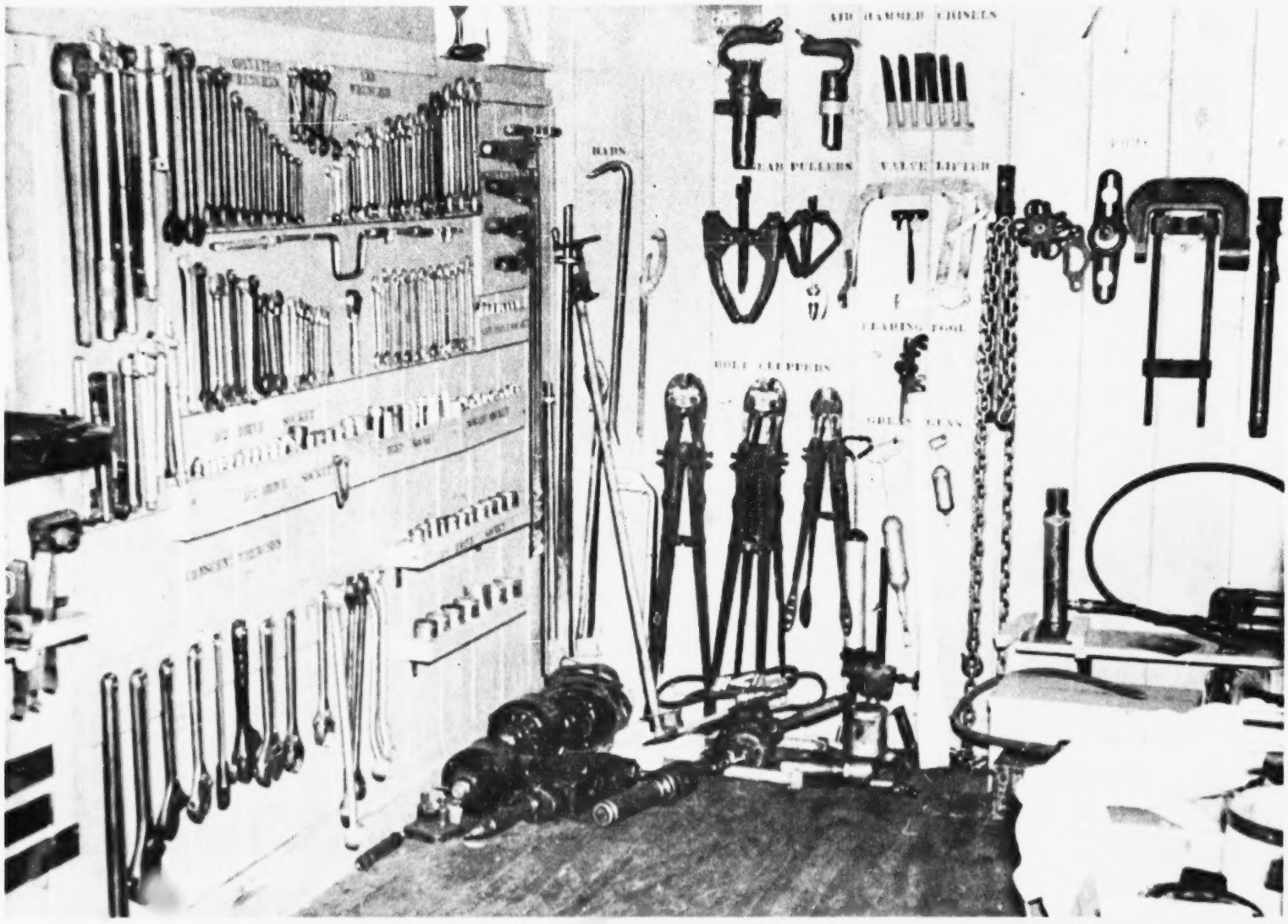
AGR. MECHANICS SHOP



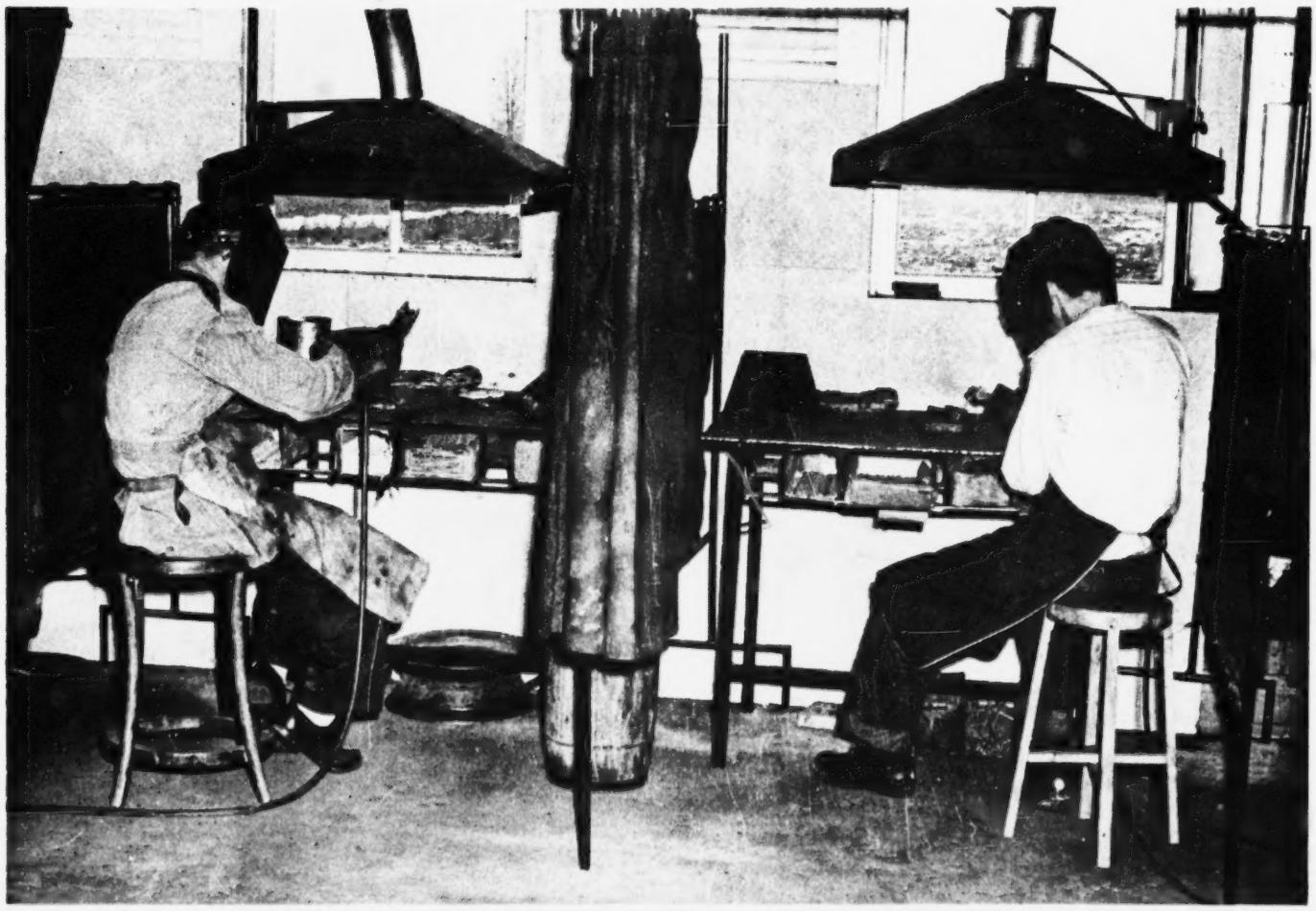
TOOL ROOM

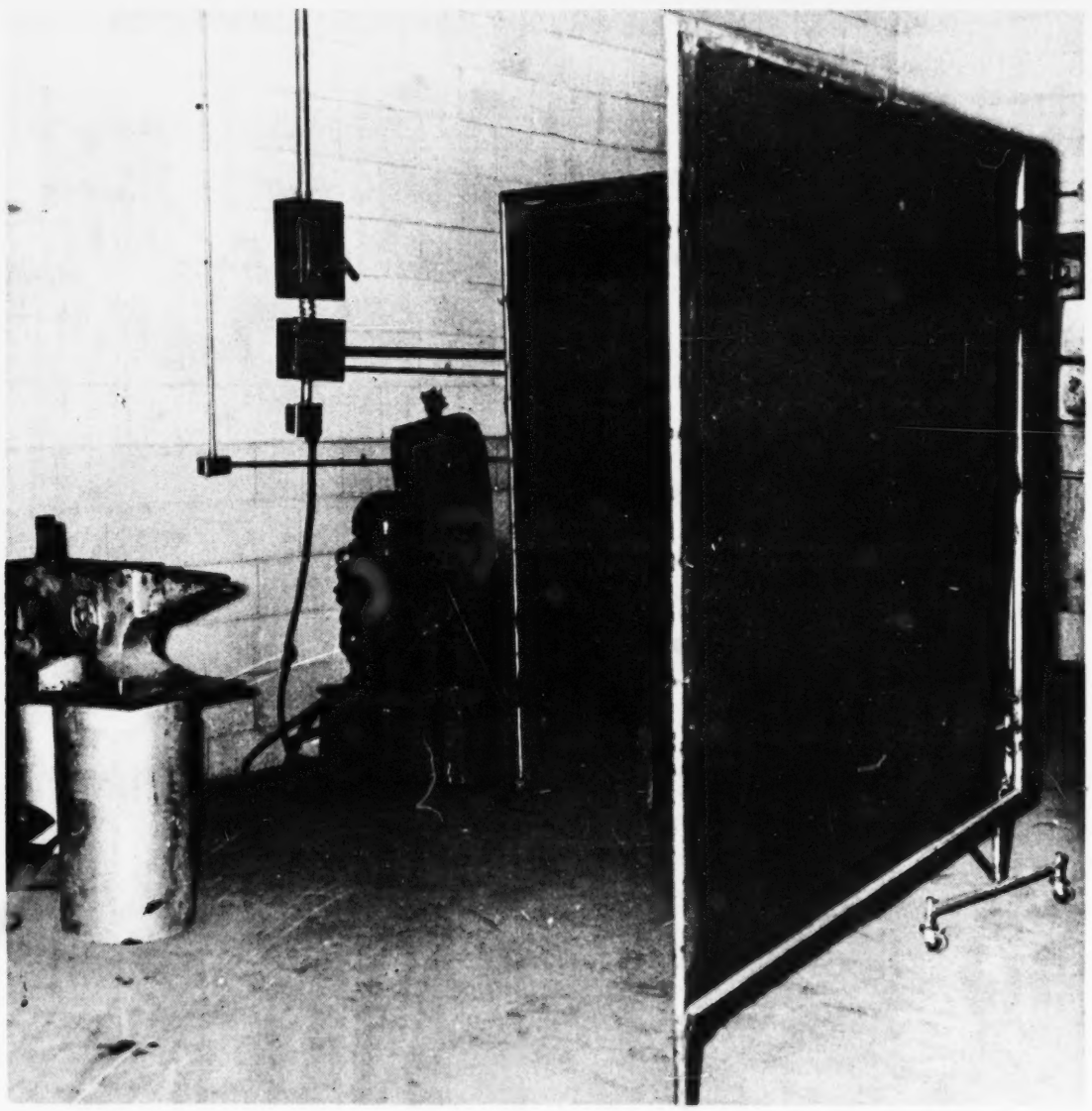


TOOL ROOM ARRANGEMENT

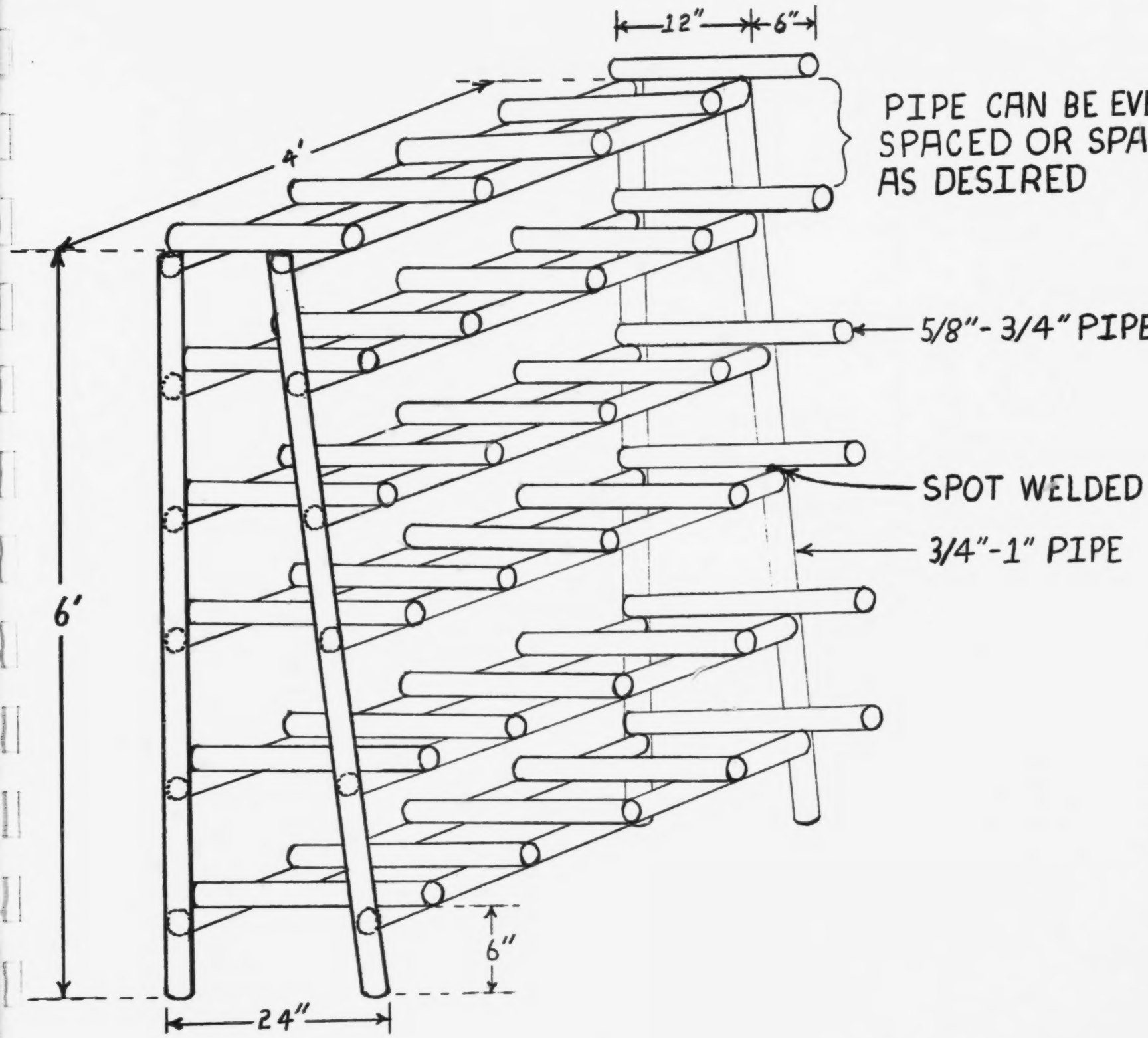


Welding Booths

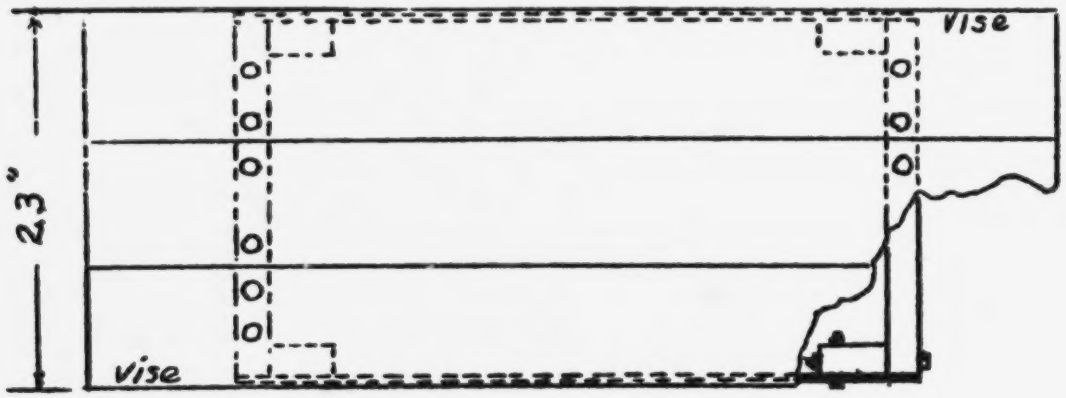


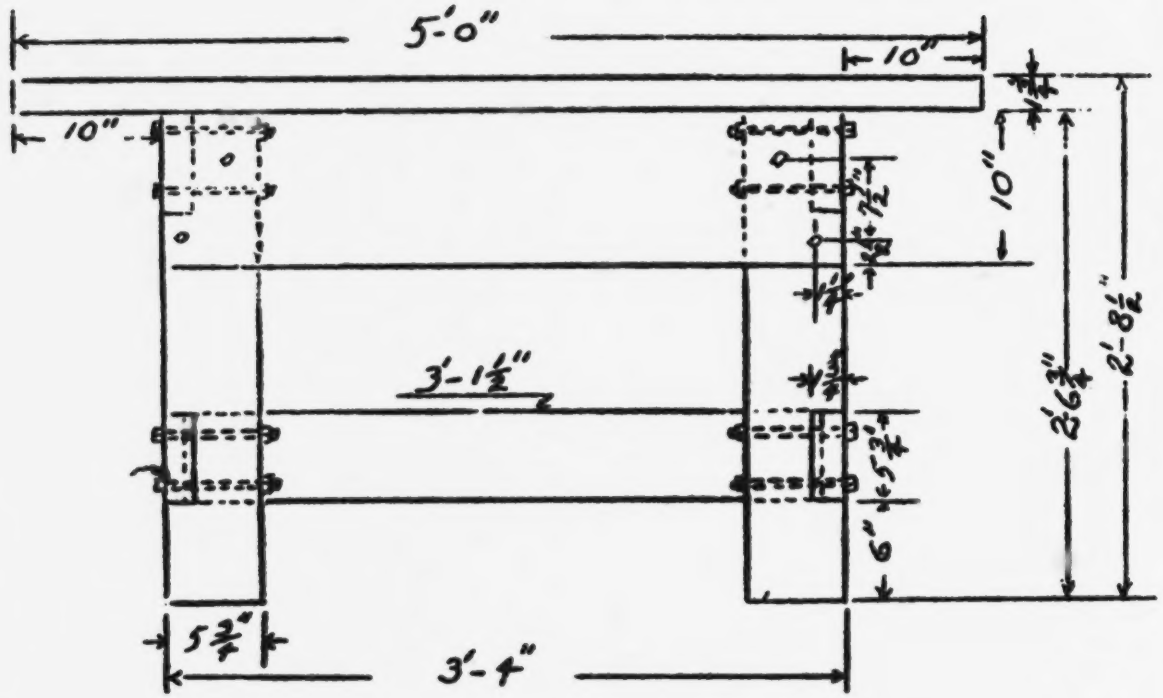


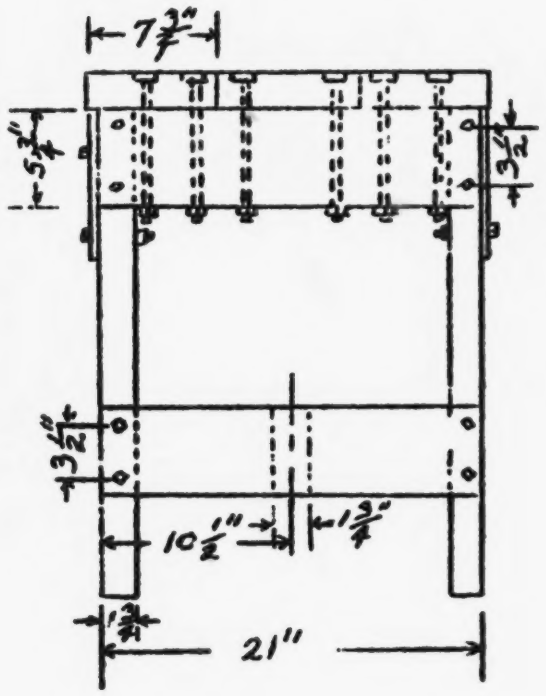
METAL STORAGE RACK



WOODWORKING BENCH







Bill of Material

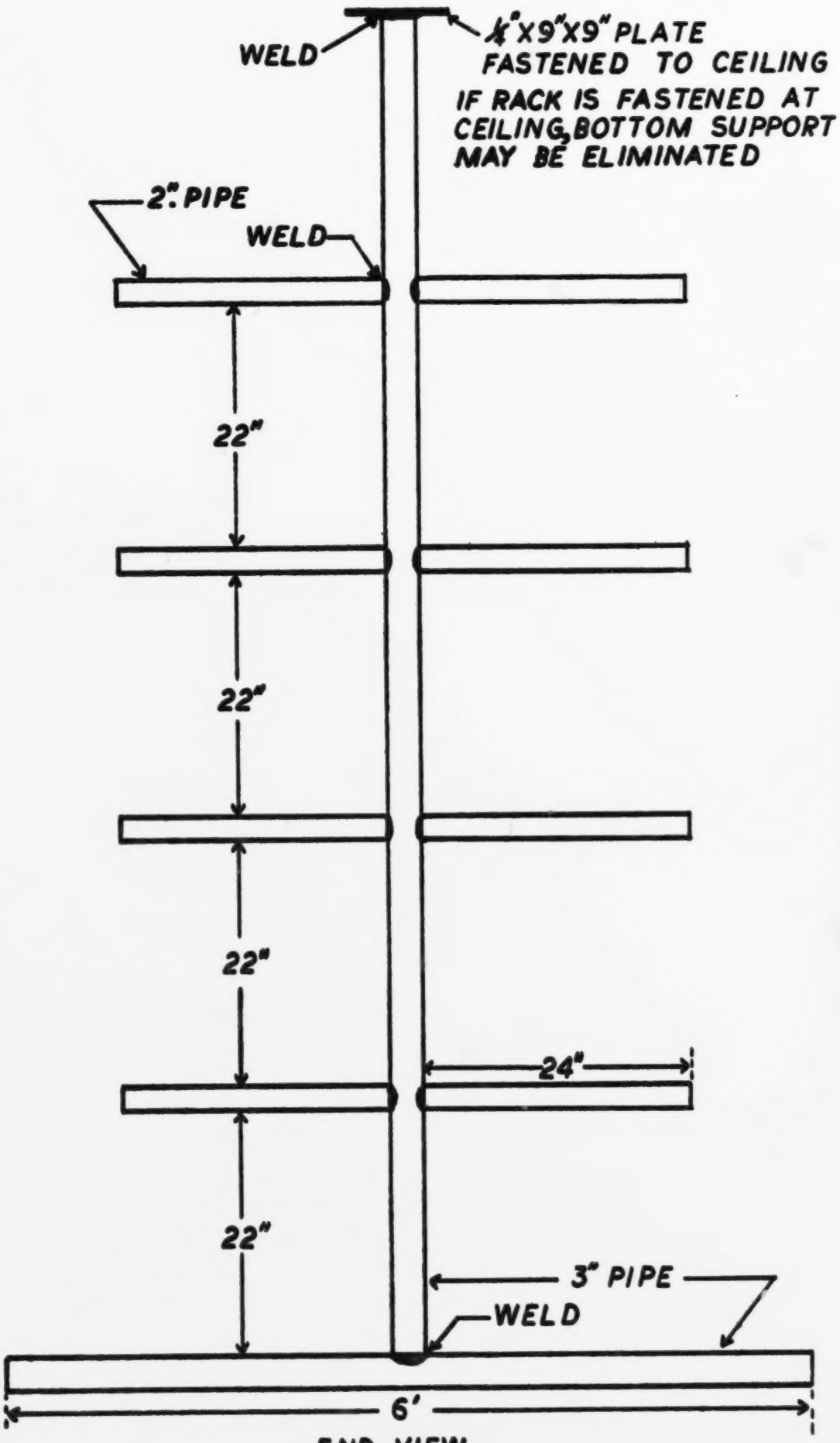
Lumber

3	pieces	- 2" x 8" x 5'	Top (hardwood)
4	"	- 2" x 6" x 2' - 6 3/4"	Legs (softwood)
4	"	- 2" x 6" x 21"	End braces (softwood)
1	"	- 2" x 6" x 3'-1½"	Center brace (softwood)
2	"	- 1" x 10" x 3'-4"	Aprons (softwood)

Hardware

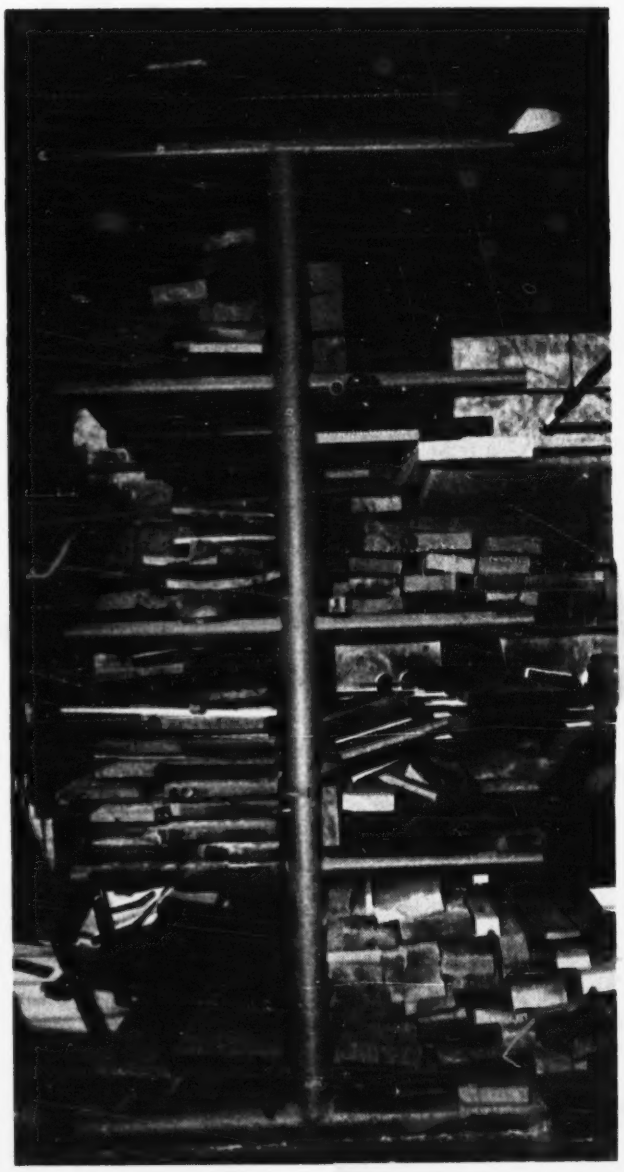
12 Carriage bolts, 3/8" x 7½", with washers - to bolt table top to end braces.
16 Machine bolts, 3/8" x 6¾", with washers - to bolt end braces to legs.
8 Carriage bolts, 3/8" x 3", with washers - to bolt apron to legs.
4. Lag screws, ½" x 3", to fasten center brace to lower end braces.

LUMBER STORAGE RACK



END VIEW

USE FIVE SUPPORTS WITH A SPACING OF 3',4',4',&3'



TOOLS AND EQUIPMENT

FOR AGRICULTURAL MECHANICS

The following list of tools and equipment is a recommended standard for all departments of vocational agriculture. Departments with a larger number of students may need to increase the number of tools in the various areas of Agricultural Mechanics work.

1. GENERAL

Name of Tool	Size and/or Description	Number	Number on Hand
First Aid Kit	Of sufficient size to contain an adequate supply of first aid material	1	
Fire Extinguisher	Carbon dioxide type (used on oil, etc.) 5 lb. size	1	
Fire Extinguisher	2-1/2 gallon Soda-Acid type (used on wood, paper, and textile fires).	1	
Fire Blanket	Complete with case	1	
Metal Work Bench	6' x 34" x 32", 2" steel tops	2	
Stencil Brushes	One 1", one 1-3/8"	2	
Adjustable Stencils	1" and 2" letters	2 sets	
Adjustable Stencils	1" and 2" figures	2 sets	
Work Benches	2' x 5', shop made	6	
Steel Stamps	1/4" mounted in wood blocks, letters and figures	1	
Steel Parts Bins	87" x 36" x 12", 6 openings 6" wide x 13-1/2" high, 72 openings 6" wide x 6" high .	2	
Shop Desk	Standing type with lock	1	

2. FARM SHOP WORK

Planer	12"-16", 3 phase, 3 h.p. motor	1	
Radial Arm Saw	12", 3 phase, 2-3 h.p. motor, with accessories	1	
Tilting Arbor Saw	10", 3 phase, 3/4 h.p. motor with accessories	1	
Dado Head	8", 1/8"-1-1/16", arbor size to fit saw. .	1 set	
Jointer	6", 3 phase	1	
Portable Electric Saw	7" heavy duty, 9-12 amps	1	
Drill Press	Standard floor model, 15", 6" spindle travel with spring return, speed 400 to 4800 R.P.M., 0-1/2" key chuck, 1/2 h.p. motor, 3 phase	1	
Drill	Portable electric, 1/2" capacity, heavy duty, Jacobs Chuck	1	
Drill	Portable electric, 1/4" capacity, Jacobs Chuck	2	
Grinder	Bench type, 3-phase, 1/2 h.p., 7" x 1" wheels, illuminated eye shields, 1725 R.P.M.	1	
Grinder	Pedestal, heavy duty, 3-phase, 1 h.p., 1725 R.P.M., 7/8" spindle, 10" x 1-1/4" wheels, illuminated eye shields	1	
Power Hack Saw	1/3 h.p., 3-phase, floor model, 5" x 5" capacity	1	
Portable Sander	3" x 24" belt, complete with dust collecting bag	1	

Name of Tool	Size and/or Description	Number	Number on Hand
Grindstone	2" x 20" stone, power driven, 1/4 h.p. motor, single phase	1	
Bandsaw	16" metal-wood, 1/2 h.p., 3-phase	1	
Wood Lathe	12", 1/2 h.p., 3-phase, variable speed	1	
Air and Propane Torch	Low pressure mixer, trigger control, adjustable pilot light and needle valve, hose and adapters, with 20# l.p. cylinders	1	
Anvil	125 lbs., 1/2' steel face with tempered edges, 3/4" hardy hole, size of face: 3-3/4" x 14-1/2"	1	
Anvil Stand	Shop made	1	
Hardies	3/4" shank, 2-1/4" width	1	
Cold Cutter	Handled 1-1/2"	1	
Blacksmith's Sledge	8 lb. double face	1	
Tongs, Curved Lip or Bolt	1/2" and 3/4"	4	
Tongs, Straight Lip	18" x 1/4", 18" x 3/8", and 20" x 1/2"	3	
Machinist's Vise	3-1/2", 4-1/2", 6", 8" jaws . . .	4	
Drill Press Vise	6"	1	
Engineer's Hammer	2-1/2 lbs., Double face	1	
Blacksmiths' Hammers	One 2 lb., one 3 lb.	2	
Rawhide Hammer	2-7/8 lbs.	2	
Machinists Riveting Hammer	12 oz.	1	
Ball Pein Hammers	1/2, 1 and 1-1/2 lbs.	6	
Bolt Cutters	1/4" and 1/2" capacity	2	
Cape Chisels	1/4", 3/8", 1/2" cutting edge . .	6	
Cold Chisels	Two 1/2", two 5/8", two 3/4", two 1"	8	
Center Punches	Two 3/8", two 1/2"	4	
Hacksaw Frames, Adjustable	Heavy duty, tubular cast aluminum handle	4	
Files	12" double cut flat bastard . . .	2	
Files	8", 10" flat mill bastard	4	
Files	8", 10" double cut flat smooth . .	4	
Files	8", half round bastards	2	
Drills, High Speed	1/16" to 1/2".	2	sets
Drills, Low Speed	1/2" to 1" to fit 1/2" chuck . . .	1	set
Outside Caliper	6", adjustable firm joint	1	
Inside Caliper	6", adjustable firm joint	1	
Screw Plate	N.C. sizes, 1/4" to 3/4"	1	set
Screw Plate	N.F. sizes, 1/4" to 3/4"	1	set
Countersink	Metal type 1/2" and 3/4"	2	
Pin Punches	Pin 1/8", 3/16", 1/4", 5/16", at point	4	
Drift Punches	1/8", 3/16", 1/4", 3/8" at point, 12" length	4	
Steel Rules	24" x 1", 1/4" and 1/8" graduations	2	
Steel Rules	6" with graduations in 1/64's . .	2	
Brush, Wire Wheel	3/4" x 6"	1	
Scratch-alls	. . . . .	6	
Screw Extractors	Sizes 1, 2, 3, 4, 5, 6 with straight shank drill to match, complete . .	1	set

Name of Tool	Size and/or Description	Number	Number on Hand
Screw Pitch Gauge	22 pitches, 9 through 40	1	
Grinding Goggles	Plastic lenses	4	
Pliers	Combination slip joint 8"	2	
Pliers	Diagonal cutting, heavy duty, 4-1/2" and 6"	2	
Vise-grips	7" - 10"	2	
Forge Furnace	Power blower, gas fired, input 200,000 B.T.U. with safety system	1	
Putty Knives	3-3/4" x 1-1/2" blade flexible	4	
Paint Scraper	3" blade	2	
Glass Cutters	Single wheel	5	
Glass Cutter	Turret head	1	
Circular Glass Cutter	2" to 12"	1	
Wire Brushes	2-1/4" x 7-1/2" block	2	
Pipe Vise	1/8" to 2-1/2"	1	
Pipe Cutter	1/8" to 2"	1	
Pipe Dies and Ratchet	1/8" to 1"	1	set
Reamer, Burring	1/4" - 2", 1/2" round shank	1	
Pipe Wrenches	6", 8", 10", 12", 14", 18", 24"	7	
Torch	Acetylene-air	1	
Bench Gas Furnace	Double burner	1	
Soldering Coppers	Two-1/2 lb., two-1 lb., two - 1-1/2 lb.	6	
Soldering Copper Handles	1-3/8" x 5-1/2"	12	
Tinners' Snips	13" combination	2	
Tinners' Snips	Aviation straight and combination	2	
Tinners' Riveting Hammers	12 oz.	2	
Rivet Sets	Sizes 1, 3, 5, 7	4	
Tinners' Mallets	2-1/2" x 4-1/2", composition	2	
Soldering Gun	250 watts	1	
Arc Welders	225 amps, 230 or 208 volts, 40 output, 225 amps, complete with accessories, cables, holders, clamps, plugs, and receptacle	2	
Welding Helmets	No. 10 lens, flip front	4	
Combination Wire Brush and Scraper	1-1/2" x 11"	2	
Chipping Hammers		2	
Arc Welding Tables	Shop made	2	
Electrode Holders	Shop made	2	
Welding Hand Shields	No. 10 lens	6	
Carbon Arc Torch	For at least 3/8" carbons	1	
Welding Clamps	Vise-grip	2	
Oxygen Regulator	Single stage	1	
Acetylene Regulator	Single stage	1	
Heavy Duty Welding Torch		1	
Welding Tip Assemblies	Sizes 1, 3, 5, 7, 9, each tip equipped with mixer	1	
Cutting Torch	Complete 75° head, one light and one medium tip	1	
Twin Hose	1/4", with fittings, 25' long	1	
Tank, Torch and Regulator Wrenches		2	

Name of Tool	Size and/or Description	Number	Number on Hand
Face Shields	Shade #4 green, cellulose acetate windows, overhead spring flex bands	2	
Goggles	#4 lenses, extra wide, to fit over any size prescription glasses	2	
Tip Cleaners	. . . . .	1	
Cylinder Truck	. . . . .	1	
Spark Lighters	. . . . .	2	
Oxy-Acetylene Welding Table	Shop made	1	
Braces	Two 8" and two 10" ratchet ball bearing universal jaws	4	
Breast Drill	2 speed, 3-jaw chuck, capacity 1/2" . .	2	
Wood Auger Bits	1/4" to 1" by 16ths	1	set
Machine Wood Bits	4" twist, sizes 1/4" to 1" by 16ths, brad point	1	set
Counter Sinks	1/4" round shank, 1/2" cutting edge . .	4	
Push Drill	With drill points, 1/16" to 11/64" . . .	1	
Bit Extension	18".	1	
Hand Drills	Heavy duty, capacity to 3/8"	2	
Screwdriver Bits	1/4", 5/16", 3/8", 1/2"	4	
Expansion Bit	7/8" to 3", 2 cutters	1	
Bit Stock Twist Drills	1/16" to 1/2" x 16ths	1	set
Counter Sinks	Brace type, 3/4" cutting edge	2	
Wood Chisels	1/4", 1/2", 3/4", 1"	4	
"I-Bar" Clamps	Three 3', three 5'	6	
Hand Screws	Two 6", two 8-1/2", two 12"	6	
C-clamps	Two 3", two 5", two 7", two 10"	8	
Mitre and Corner Clamp	3"	4	
Half Round Cabinet Files	10".	2	
Flet Wood Files	12".	2	
Extra Slim Taper Files	5-1/2"	6	
Slim Taper Files	6"	8	
Auger Bit Files	7"	2	
Wood Rasps	10" half round, bastard cut	2	
File Cards	1-1/2" x 5".	2	
Assorted File Handles	Sizes 0" to 4"	18	
Wood Rasps	8", 12", round	2	
Nail Hammers	16 oz. curved claw, chrome alloy, handled, neoprene grip	6	
Nail Hammers	20 oz. curved claw	2	
Ripping Hammers	16 oz. straight claw, octagon neck, finished	2	
Hatchet	3-1/4" cut, medium weight	1	
Tack Hammer	Magnetic	1	
Combination Squares	12" grooved blade, level glass	4	
Steel Squares	12", body 12" x 1-1/2", tongue 8" x 1" .	3	
Framing Squares	16" x 24" - blued-rafter, brace, octagon and essex tables	2	
Try Squares	8" iron handles	4	
Sliding T-bevels	8" iron handles	2	
Steel Tape	100' metallic, 3/8" wide, with case . .	1	
Carpenters level	24" - aluminum, 2-1/2" x 1", 2 plumbs, 2 levels, nonadjustable glasses	1	
Level	9" aluminum torpedo	1	

Name of Tool	Size and/or Description	Number	Number on Hand
Wing Divider	6" adjustable leg, pencil clamp and 8" adjustable leg, pencil clamp	2	
Trammel Points	Adjustable, pencil sockets	1 pr.	
Steel Tapes	6' steel pocket tapes	4	
Yard Sticks		2	
Folding Rules	Wood, 6'	4	
Jack Planes	14", 2" cutter	4	
Smoothing Plane	9", 2" cutter	2	
Block Planes	6", 1-5/8" cutter-end, side and throat adjustment	4	
Draw Knife	10"	2	
Crosscut Saws	Three 22" - 10 point, two 26" - 8 point curved back	5	
Ripsaws	26" - 5-1/2 point	3	
Mitre Box	All metal with 28" back saw	1	
Coping Saw	6-1/2" blade	3	
Back Saw	12" blade	2	
Nest of Saws	3 blades - keyhole, compass, plumbers pistol grip	1	
Filing Guide and Clamp	9-1/2" jaws	1	
Saw Clamp	9-1/2" jaws	1	
Saw Clamp	Shop made	1	
Saw Gummer Wheel	6"	1	
Screwdrivers	Two 1", two 3", two 4", two 6", two 8", two 12", plastic handles	12	
Philips Screwdrivers	2 each - Sizes 1, 2, 3, 4	8	
Off-set Screwdriver	1-3", 1-6"	2	
Saw Horses	Shop made	6	
Woodworkers' Vises	4" x 10" continuous screw, steel handle	6	
Marking Gauge	Adjustable 6-1/2"	2	
Wrecking Bars	5/8" x 18", 3/4" x 30", tool steel	2	
Combination Oil Stones	6" x 2" x 1" one side coarse, one side fine	2	
Slip Stones	Medium and fine 4-1/2" x 3/8" x 1/8"	2	
Grinding Wheel Dresser	One No. 1, 1-1/2" cutter - one No. 2, 2-3/8" cutter, corrugated type	2	
Extra Grinding Wheel Dresser Cutters	3 each size	6	
Cabinet Scraper	2-1/2" blade, length 12-1/2"	2	
Nail Sets	1 dozen assortment 1/32" to 1/8"	1 set	
Carpenter's Mallet	3" x 5" head	2	
Bench Stops		6	
Nail Puller		1	
Sabre Saw	Heavy duty, 2.5-3 amps	1	
Wood Turning Tools	8 tools	1 set	
Paint Spray Outfit	Includes hose, pressure regulator and gauge, spray gun, extractor and air dusting gun	1	
"Pop" Riveter and Assortment of Rivets		1	

3. FARM POWER AND MACHINERY

Air Compressor	3-phase, 1/2 h.p., single stage, 100 lbs. P.S.I., 30 gallon tank, including hose,	

Name of Tool	Size and/or Description	Number	Number on Hand
Air Compressor cont'd.	tire chuck and air nozzle	1	
Portable Electric Grinder	Wheel size 5" x 3/4", adjustable steel guard	1	
Electric Hoist	1 ton capacity, 3/4 h.p..	1	
Bench Oilers	. . . . .	6	
Cans, Solvent Storage	. . . . .	2	
Wire Brush	. . . . .	6	
Solid Punches	1/8", 3/16", 7/32", and 1/4", 3/8" points 1/2" stock	4	
Line-up Punches	3/16", 1/4" points - 12" long	2	
Line-up Punch	3/16", 1/4" points - 18" long	2	
Farm Service Repair Block	Replaces mower ledger plates, sections, etc.	1	
Wheel and Gear Puller	Medium two arm, reversible jaws, range 0" to 8"	1	
Wheel and Gear Puller	Large three arm	1	
Trouble Lights	Waterproof, 2-50' cords, 2-25' cords. .	4	
Midget Socket Set	11 piece set - 7/32" to 7/16" - 1/4" drive with case	1	set
Socket Wrench Set	12 points, 16 piece set, 7/16" to 1", 1/2" square drive	1	set
Box End Wrenches	Set of 6, size 3/8" to 1"	1	set
Combination Wrenches	10 piece set, sizes 3/8" to 1".	1	set
Open End Adjustable	One 4", two 6", two 8", one 10", two 12", two 16", one 18"	11	
Set Screw Wrench Set	11 hex. keys, fits set screw, sizes #4, to #10, and 1/4", 5/16", 3/8", 7/16" to 1/2"	1	set
Tappet Wrenches	Set of 6, 7/16" to 13/16"	1	set
Midget Ignition Wrenches	8 piece combination 13/64" to 7/16" . .	1	
Pressure Grease Gun	1 lb. heavy duty lever gun	1	
Piston Ring Compressors	Racheting 2-1/8" to 5" and 3-1/2" to 7"	2	
Plastic Hammer	Replaceable tips; head 7/8", 1-3/8" and 1-5/8".	3	
Thickness Gauge	Eight leaves, .002 to .015	1	
Speed Indicator	Operates clockwise and counterclockwise	1	
Valve Lifters	One screw type valve lifter, one vertical type valve spring compressor. . . .	2	
Carbon Scraper	Flexible	2	
Jack	Hydraulic floor capacity 1-1/2 tons, lift 3-5/8" to 24".	1	
Mechanics Creeper	. . . . .	1	
Deep Sockets or Spark	1/2" to 1-1/8", 12 piece set, 1/2" square drive	1	set
Heavy Duty Sockets with Handles	1-1/16" to 2", 18 piece set, 3/4" square drive	1	set
Torque Wrench	0 to 150 foot-pounds, 3/8" square drive	1	
Torque Wrench	0 to 200 foot-pounds, 1/2" square drive	1	
Battery Strap	. . . . .	1	
Filler Can	Radiator	1	
All Purpose Farm and Utility Jack	1-1/2 ton capacity, extends to 40". . .	1	
Tubing Flaring Set	3/16" to 5/8"	1	
Tubing Cutter	Capacity to 1".	1	

Name of Tool	Size and/or Description	Number	Number on Hand
Spark Plug Gap Wire Gauge	. . . . .	1	
Battery Hydrometer	. . . . .	1	
Funnels	Assorted sizes.	4	
Compression Tester	Plug in with long stem adapters	1	
Antifreeze Tester	For all types of antifreeze	1	
Tire Gauge	For low pressure or liquid filled tires, 5 to 50 lbs.	1	
Pliers	Water pump, 10"	1	
Porto-power	10 ton hydraulic unit, general maintenance assort., blackhawk	1	
Stock Carts	36" x 24" x 32" high with shelf	2	
Tool Kits	For small gasoline engines, 1 Briggs & Stratton, 1 Clinton	2	
Cell Tester	Battery	1	
Combination Steam Washer & Cleaner	. . . . .	1	
Timing Light	. . . . .	1	
Coil-Condenser-Ignition Tester	. . . . .	1	
Portable Disc Sander	7"	1	
Adjustable Stands	5 ton capacity	1 pr.	

4. FARM BUILDINGS & OTHER STRUCTURES

Brick Trowel	11" blade	1	
Plastering Trowel	11" blade finishing	1	
Pointing Trowel	2-3/4" x 6" steel blade	1	
Concrete Edger	2-3/4" x 5-3/4" rounded ends	1	
Concrete Jointer	3" x 6" rounded ends	1	
Concrete Floats	3/4" x 5" x 12", wood, shop made . . .	2	
Fluted Rubbing Brick	1-1/2" x 3-1/2" x 8" with handle . . .	1	
Long Handled Shovel	Round point	1	
Square Pointed Shovels	Polished	2	
Brick Hammer	24 oz.	1	
Brick Chisel	4/8" shank, 4" cutting edge	1	
Mortar Mixing Box	Shop made	1	
Gravel Screen	1/4" mesh, 3' x 5', shop made	1	
Buckets	12 quart, galvanized	3	
Level	48" wood	1	
Measuring Box	Capacity 1 cubic foot, shop made . . .	1	
Mortar Mixing Hoe	2 hold, steel blade, 5-1/2' handle . .	1	
Star Drills	1/4", 3/8", 1/2", 5/8", 3/4".	5	
Masonry Drill Bits	1/4", 3/8", 1/2", 5/8", 3/4".	5	
Plumb Bob	9 oz.	1	
Chalk Line	Self chalking reel type, 100'	1	

5. FARM ELECTRIFICATION

Lineman's Side Cutter Pliers	7"	4	
Long Nose Pliers	6".	2	
Diagonal Cutting Pliers	6".	2	
American Standard Wire Gauge	No.'s 5 to 36	1	

Name of Tool	Size and/or Description	Number	Number on Hand
Electrician's Screwdrivers	One 3", two 6", one 10", small blade . . plastic handle	4	
Ammeter	AC-DC range 0-50 amps	1	
Voltmeter	AC-DC range 0-300 volts	1	
Watt Hour Meter	AC-DC range 0-1500, 0-3000	1	
Circuit Testers	110 to 550 volts	3	
Electrician's Bits	1/2, 5/8, 3/4, 7/8	4	
Cable Strippers	For non-metallic cable, No.'s 6-14 wire	1	
Wire Cutter and Crimpers	Combination tool that cuts and strips common gauges of wire, and crimps solderless terminals	1	
Electric Soldering Iron	200 watts	1	
Electric Soldering Iron	300 watts, 7/8" tip	1	
	6. SOIL AND WATER MANAGEMENT		
Convertible Level and Transit	Magnifying power 16 diameters min., focus 5 ft., graduated circle 4", fixed cross hairs with compass	1	
Rod and Target	9' graduated in feet and hundredths 100' with reel-graduated feet and inches . .	1	
Hand Levels	5" brass	2	
Marking Pins	2" diameter top	1 set	
Abney Level	Arc scaled in terms of percentages of grade and degrees, complete with case. .	1	

SUPPLIES FOR AGRICULTURAL MECHANICS CLASSES

	Number Recommended	Number On Hand
Cross Section Paper, 8½" x 11", 4 squares per inch	1 ream	
Cross Section Paper, 8½" x 11", 5 squares per inch	1 ream	
Cross Section Paper, 8½" x 11", 20 squares per inch	1 ream	
Mechanical Drawing Paper, 18" x 24"	2 reams	
Saber Saw Blades, assorted 3" and 4"	2 dozen	
Coping Saw Blades, 6"	1 gross	
Hacksaw Blades, 12" x ½"	2 dozen	
Paint Scraper Blades to fit scraper	6	
Paint - Outside		
Red	2 gal.	
White	2 gal.	
Gray	2 gal.	
Paint and Varnish Remover	2 gal.	
Turpentine	1 gal.	
Linseed Oil	1 gal.	
Paint Thinner	2 gal.	
Lacquer Thinner	1 gal.	
Paint - Enamel		
Various Colors - 12, 1 qt. cans	3 gal.	
Varnish - 4, 1 qt. cans	1 gal.	
Lacquer - 4, 1 qt. cans	1 gal.	
Stain - 4, 1 qt. cans	1 gal.	
Paint Brush Cleaner	2 qts.	
Glazers Points	1 box	
Glazing Compound - 1 lb. cans	4	
Solder, Acid core - 50/50	4 lb.	
Rosin core - 50/50	4 lb.	
Wire - 50/50	4 lb.	
Aluminum - Flex core	1 lb.	
Soldering Paste - 2 oz. can	4 cans	
Sal Ammoniac - 1/4 lb. bricks	1 lb.	
Soldering and Tinning Flux	1 gal.	
Cutting Oil	1 gal.	
Hide Glue	1 gal.	
Resin Glue	1 gal.	
Contact Cement	1 gal.	
Carpenters Pencils	1 dozen	
Soap Stone	1 dozen	
Penetrating Oil	2 qts.	
Lubricating Oil	2 qts.	
Machine Oil	1 qt.	
Graphite Lubricant	1 lb.	
Cup Grease	5 lbs.	
Wheel Bearing Grease	5 lbs.	
Dope Thread	1 lb.	
Gasket Material	2 sheets	
Striker Flints	1 dozen	
Carbon Rods 1/4"	25	
Carbon Rods 3/8"	25	
Arc Welding Electrodes, all purpose mild steel- assorted sizes	200 lb.	

	Number Recommended	Number On Hand
Cast Iron Electrode	50 lb.	
Hard Surfacing Rod	25 lb.	
All-Purpose Welding Rod	100 lb.	
Cast Iron Rod	50 lb.	
Bronze Rod, 36" - assorted sizes	100 lb.	
Brazing Flux	2 lb.	
Cast Iron Brazing Flux	1 lb.	
Cast Iron Welding Flux	1 lb.	
Aluminum Welding Flux	1 lb.	
Oxygen	1 tank	
Paint Brushes, 2-2", 2-2½", 2-3", 2-4"	8	
Varnish Brushes, 3-1", 3-2"	6	
Gloves - chrome tanned split cowhide, five fingers	2 pr.	
Welding Gloves - asbestos or leather	4 pr.	
Acetylene	1 tank	
Tool Steel - round		
5/16" x 10'	1	
1/2" x 10'	1	
5/8" x 10'	1	
Mild Steel - round		
1/4" x 10'	1	
3/8" x 10'	1	
1/2" x 10'	1	
5/8" x 10'	1	
3/4" x 10'	1	
Mild Steel - flat		
1/8" x 3/4" x 10'	1	
1/8" x 1" x 10'	1	
1/8" x 1½" x 10'	1	
1/4" x 1" x 10'	1	
1/4" x 1½" x 10'	1	
1/4" x 1½" x 10'	1	
3/16" x 1" x 10'	1	
3/16" x 1½" x 10'	1	
3/16" x 1½" x 10'	1	
Mild Steel - angle		
1/8" x 1" x 1" x 10'	1	
1/8" x 1½" x 1½" x 10'	1	
3/16" x 1" x 1" x 10'	1	
3/16" x 1½" x 1½" x 10'	1	
3/16" x 2" x 2" x 10'	1	
Nails - assorted sizes of common, box and finish	50 lb.	
Screws - wood		
flat head steel - 1/2" x 6	1 gross	
3/4" x 8	1 gross	
1" x 8	1 gross	
1½" x 10	1 gross	
2" x 12	1 gross	
Screws - wood		
round head steel- 1/2" x 6	1 gross	
3/4" x 8	1 gross	

		Number Recommended	Number On Hand
Screws - wood round head steel cont.	1" x 8	1 gross	
	1½" x 10	1 gross	
	2" x 12	1 gross	
Screws - sheet metal	1/4" x 6	1 gross	
	3/8" x 7	1 gross	
	1/2" x 8	1 gross	
	5/8" x 10	1 gross	
Screws - wood oval head steel -	1/2" x 6	1 gross	
	5/8" x 6	1 gross	
	3/4" x 8	1 gross	
	7/8" x 8	1 gross	
	1" x 8	1 gross	
	1¼" x 10	1 gross	
Bolts - round head stove bolts -	1/4" x 1"	100	
	1/4" x 1½"	100	
	1/4" x 2"	100	
	3/16" x 3/4"	100	
	3/16" x 1"	100	
	3/16" x 1½"	100	
Machine Bolts -	1/4" x 1"	100	
	1/4" x 1½"	100	
	1/4" x 2"	100	
	1/4" x 3"	100	
	1/4" x 4"	100	
	5/16" x 1½"	100	
	5/16" x 2"	100	
	5/16" x 3"	100	
	5/16" x 4"	100	
	3/8" x 2½"	100	
	3/8" x 3"	100	
	3/8" x 3½"	100	
	3/8" x 4"	100	
	1/2" x 3"	100	
	1/2" x 3½"	100	
	1/2" x 4"	100	
Carriage Bolts -	1/4" x 1½"	100	
	1/4" x 2"	100	
	1/4" x 3"	100	
	1/4" x 4"	100	
	1/4" x 4½"	100	
	5/16" x 1½"	100	
	5/16" x 2"	100	
	5/16" x 3"	100	
	5/16" x 4"	100	
	3/8" x 2"	100	
	3/8" x 3"	100	
	3/8" x 4"	100	

		Number Recommended	Number On Hand
Carriage Bolts cont.			
	1/2" x 2"	100	
	1/2" x 3"	100	
	1/2" x 4"	100	
	1/2" x 5"	100	
Tinners Rivets -			
tinned rivets	1 lb. size	1000	
	2 lb. size	1000	
	3 lb. size	1000	
Soft Iron Rivets -			
round head	3/16" x 3/8"	2 lb.	
	3/16" x 1/2"	2 lb.	
	3/16" x 5/8"	2 lb.	
	3/16" x 3/4"	2 lb.	
flat head	3/16" x 3/8"	2 lb.	
	3/16" x 1/2"	2 lb.	
	3/16" x 5/8"	2 lb.	
	3/16" x 3/4"	2 lb.	
Washers - Flat, assorted sizes			
Washers - Lock, assorted sizes			
Cotter Pins - assorted sizes			
Rope - Manila 3/8"		100 ft.	
Rope - Manila 1/2"		100 ft.	
Lumber - 3/4" x 8" x 8'		2000 ft.	
Lumber - 2" x 4" x 8'		1000 ft.	

ADDITIONAL EQUIPMENT AND SUPPLIES NEEDED FOR ADVANCED AGRICULTURAL MECHANICS COURSE

Equipment and Supplies:

Name of Tool	Size and/or Description	Number Recommended	Number on Hand
Steel Parts Bins	87" x 36" x 12"	2	
Combustion Analyzer		1	
Battery Charger		1	
Oily Waste Can	10 gallon size	2	
Battery Terminal Puller		1	
Work Benches	6' x 34" - Metal	4	
Stock Carts with Caster		4	
Tool Kits	For small gasoline engines (Briggs, Stratton, & Clinton)	2	
File	Round, double cut, 6"	4	
File	Round, double cut, 10"	4	
File	Slim taper, 5"	4	
File	Slim taper, 8"	4	
File	Tungsten Point	4	
Saw File	Extra Slim Taper, 5" x 6"	8	
Set Quick-set Adjustable Reamers		1	
Flexible Exhaust Hose	2½"	50 ft.	
Outside Micrometer	0" - 1", graduations .001"	1	
Outside Micrometer	1" - 2", graduations .001"	1	
Set Nut Drivers	3/16" to 1/2", 6" length	1	

Exhaust Fan	Explosion Proof, 24", Single phase, 1/2 H.P., 1140 R.P.M., 6200 C.F.M.	1
Inside Micrometer	2" to 8", 1-½" gauge	1
Valve Grinder		2
Ring Groove Cleaner with cutter		2
Ring Expander	2" - 4"	2
Extension Cord Reels	20 ft. cord	4
Adjustable Stands	5 T. capacity	2 pr.
Ridge Reamer	2" to 3" with cutter	1
Trouble Lights	50' cord	4
Lineman's Side Cutter Pliers	7"	2
Long Nose Pliers	6"	2
Diagonal Cutting Pliers	6"	2
Starter Punches	1/8", 3/16", and 1/4", 3/8" points - 1/2" stock	4
Line-up Punches	3/16", 1/4" points - 12" long	4
Line-up Punches	3/16", 1/4" points - 18" long	2
Plastic Hammer	Replaceable tips: head 7/8", 1-3/8" and 1-5/8" (2 of each)	6
Thickness Gauge	Eight leaves, .002 to .015	2
Metal Work Benches	5' x 30" with back riser & drawer	4
Hacksaw Frames, adjustable	Heavy duty, tubular cast aluminum handle	3
Files	12" double cut flat bastard	4
Files	8", 10" flat mill bastard	4
Files	8", 10" double cut flat smooth	4
Files	8", half round bastards	4
Drills, high speed	1/16 to 1/2"	1 set

Bench Oilers		6
Cans, Solvent Storage		4
Countersink	Metal type 1/2" and 3/4"	2
Pin Punches	Pin 1/8", 3/16", 1/4", 5/16", at point	4
Drift Punches	1/8", 3/16", 1/4", 3/8" at point	4
Steel Rules	24" x 1", 1/4" and 1/8" graduations	2
Steel Rules	6" with graduations in 1/64's	2
Brush, wire wheel	3/4" x 6"	2
Brush, steel		6
Scratch-alls		6
Screw Extractors	Sizes 1,2,3,4,5,6 with straight shank drill to match, complete	1 set
Screw Pitch Gauge	22 pitches, 9 through 40	1
Grinding Goggles	Plastic lenses	4
Pliers	Combination slip joint 8"	2
Pliers	Diagonal cutting, heavy duty, 4-1/2" and 6"	2
Pliers	Water Pump 10"	2
Vise-grips	1-7", 1-10"	2
Putty Knives	3-3/4" x 1-1/2" blade flexible	4
Paint Scraper	3" blade	2
Paint Brushes	Two 2", two 2-1/2", two 3", two 4"	8
Stencil Brushes	One 1", one 1-3/8"	2
Adjustable Stencils	1" and 2" letters	2 sets
Figure Stencils	1" and 2" figures	2 sets
Pipe Wrenches	6", 8", 10", 12", 14", 18", 24"	7
Electric Soldering Iron	200 watts	1

Electric Soldering Iron	300 watts, 7/8" tip	1
Tinners' mallets	2-1/2" x 4-1/2", composition	2
Arc Welders	225 amps, 230 or 208 volts output 40-225 amps, complete with accessories, cables, holders clamps, plugs, and receptacle	2
Welding Helmets	No. 10 lens, flip front	4
Combination Wire Brush and Scraper	1-1/2" x 11"	2
Chipping Hammers		2
Arc Welding Tables	Shop made	2
Electrode Holders	Shop made	
Welding Hand Shields	No. 10 lens	6
Carbon Arc Torch	For at least 3/8" carbons	1
Gloves	Chrome tanned split cowhide, five fingers	2 pr.
Welding Clamps	Vise-grip	2
Oxygen regulator	Single stage	1
Acetylene regulator	Single stage	1
Heavy Duty Welding Torch		1
Welding Tip Assemblies	Sizes 1,3,5,7,9, each tip equipped with mixer	1
Cutting Torch	Complete 75^{o}head, one light and one medium tip	1
Twin Hose	1/4", with fittings, 25' long	1
Tank, Torch and Regulator Wrenches		2
Face Shields	Shade #4 green, cellulose acetate windows, overhead spring flex bands	2
Goggles	#4 lenses, extra wide, to fit over any size prescription glasses	2
Welding Gloves	Asbestos or leather	2
Tip Cleaners		1

Cylinder Truck		1
Spark Lighters		2
Oxy-acetylene Welding Table	Shop made	1
Wood Chisels	1/4", 1/2", 3/4", 1"	4
C-clamps	Two 3", two 5", two 7", two 10"	8
File Cards	1-1/2" x 5"	2
Assorted File Handles	Sizes 0" to 4"	12
Nail Hammers	16 oz. curved claw, octagon neck, finished	2
Nail Hammers	20 oz. curved claw	2
Hatchet	3-1/4" cut, medium weight	1
Jack Planes	14", 2" cutter	2
Smoothing Plane	9", 2" cutter	2
Crosscut Saws	1, 22" - 10 point, two 26" - 8 point curved back	3
Ripsaws	26" - 5-1/2 point	1
Saw Set	Pistol Grip	1
Saw Clamp	9-1/2" jaws	1
Screwdrivers	Two 1", two 3", two 4", two 6", two 8", two 12", plastic handles	12
Philips Screwdrivers	2 each, sizes 1,2,3,4	8
Off-set Screwdriver	1-3", 1-6"	2
Wrecking Bars	5/8" x 18", 3/4" x 30", tool steel	2
Combination Oil Stones	7" x 2" x 1" coarse and fine	2
Grinding Wheel Dressers	One No. 1, 1-1/2" cutter - one No. 2, 2-3/8" cutter, corrugated type	2
Steel Stamps	1/4" mounted in wood blocks, letters and figures	1
4-drawer file	Letter size with lock	1
Standing type shop desk with lock		1

ADDITIONAL EQUIPMENT AND SUPPLIES NEEDED FOR CONSERVATION COURSE

Name and Description	Number Recommended	Number on Hand
Topographical Maps - one quardrangle each for sections of county and area	15	
6 inch clear plastic rules "C thru-Exact" #A-23	20	
Chain saw - about 19 pounds	1	
Leupold Abney Levels 6 1/2 in.- 4 scales	2	
Exact Factor Prisms - 10 Factor	4	
Triangular Architect scales "Pearwood"	18	
Biltmore Cruiser Sticks (to be made in shop)	18	
Chain Tapes, Graduated in Feet (200) ft.	2	
Chain Tapes, Graduated in Links	2	
Drawing Tables #7-7902 Ben Meadows 3/4 "X24" "X36" size	18	
Pads of Cross Section Paper 8 1/2" x 11" 3 hole punched 8 square per inch	36	
Pads of Carvel Tracing Paper 18" x 24" sheets	5	
Rolls of Drafting Tape 3/4 in. wide	20	
Diameter Tapes #C120TP Ben Meadows	2	
Forester Compass with Jacob Staff, Leather case and ball joint socket	2	
Telescoping Extension leg tripod for above compasses found in Forestry Supplier Catalog page 131 #37360, 37380, 37390, 37400	2	
2 gallon gasoline safety can	1	
6 pack oil for chain saw	4	
Gallon #10 wt. oil (for chain saw)	2	
Files for chain saw	2	

Name and Description (cont.)	Number Recommended	Number on Hand
Lumber scaling sticks International Rule	10	
Loose leaf - 3 ring notebooks 8 1/2" x 11"	18	
Package fillers for the above 3 ring 8 1/2" x 11"	20	
Gross #2 pencils	1	
Gross #3 pencils	1	
Gross #4 pencils	1	
Snake Bite Kits	2	
Doz. cans orange paint for paint guns quart size	1	
Pottable blackboard	1	
Flip chart with stand and paper	1	
Carton (12 rolls) orange flagging ribbon	1	
Plumb bobs	2	
Roll "Mipofolio" 36" x 30"	1	
Winter liners for safety helmets 9 large 9 small	18	
6 1/2 inch compasses	18	
Brush hooks 10"	4	
Axes - single bit	6	
Indian fire pump with tank	1	
Protractors 6"	24	
Straightedge 30"	6	
T-square 24"	18	
Triangles 12" 30° - 60°	18	
Triangles 12" 30° - 90°	18	
Area Scales (assorted)	24	
Land area scales	18	
Liets drawing set	1	
Wrice lettering set 140-240	1	

Name and Description (cont.)	Number Recommended	Number on Hand
Plastic french curves (assorted)	6	
Lettering pens	6	
Draftsman drawing sets	18	
Tripod magnifiers 10X	5	
Pocket magnifiers 10X	18	
Letter guide templet	2	
Tally boards, aluminum 9" x 12"	18	
Fiber slip boards 9" x 12"	18	
Replacement scales (Abney Level)	4	
Orsa pruning saw 26"	4	
Sandviken saws 18"	4	
Blades for bos saw 36"	6	
Saw and trimmer combination 20"	4	
Sectional aluminum poles 12"	4	
Long handles shovels 7" x 10"	4	
Safety hats	18	
Portable first aid kits	3	
Planting bars (to be made in shop)	20	
Nels-spot hand gun with nozzle	4	
Sandvik increment borers 10"	3	
Pole Prunners 12'	4	
Film splicer	1	
Map measurers	3	
35 mm Camera Praktica 4-B has built in light meter F #1.8 Tesser lens and case	1	
Set close up tubes for Praktica 4-B	1	
Honeywell Tilt-a-mite flash unit with 15 volt B-C battery	1	
Right angle bracket for flash unit	1	
Orsa bow saws 36"	4	

Name and Description (cont.)	Number Recommended	Number on Hand
Drafting machines with 24" scales	2	
Bull Horn "Porto - Paga"	1	
8" files	12	
Water cooler "Egloo" 2 gallon	1	
Canteens	15	
Tension handles for tapes	2	
Tape repair kit	1	
Tapewriter "Dymo" with tape 40.00 + tape	1	
Planimeter	2	
Shovels - Round point	6	
Recon compasses	4	
Fire rakes	6	
Steel lettering sets	1	
Steel number set	1	
Etching pencil	1	
Piston ring grove cleaner	1	
Piston ring compressor	1	
Grafting wax - Pound	1	
Soil samplers (tube type) - 36"	1	
Propane torch set	1	
Chain saw file guide	2	
Paint can carrier pack	1	
Sandpaper - assorted grades	1 pkg.	
1/5 acre plot tapes	8	
Hand Axe	1	
Rope	1	
Caliper	1	
Box Marker Crayon	1	
Paint Brushes	4	

Name and Description (cont.)	Number Recommended	Number on Hand
Set Chaining pins	1	
Set Wood I.D. Blocks	1	
Cross Cut Saw	1	
2 man power saw	1	
Sheets cross section paper (approximately 28-32 x 20) (10 sq./inch)	1 gross	
16 mm projector, with splicer, two extra reels	1	
Automatic slide projector, with bulbs	1	
Instamatic camera	1	
Over-head projector	1	
Opaque projector with extra large screen (8' x 6')	1	
Mimeograph (codo) machine	1	
Brush master (Homelite)	1	
Tree climbers	2	
Transit with tripod (stadia rods) with targets	1	
Compass (range pole) (in feet)	2	

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This list does not include the necessary equipment and supplies for teaching Agricultural Mechanics to Conservation Classes. If an Agriculture Mechanics shop is not available, then the required equipment and supplies needed for Conservation Classes should be selected from the list of tools, equipment, and supplies for Agricultural Mechanics Classes found elsewhere in this publication.

ADDITIONAL EQUIPMENT AND SUPPLIES NEEDED FOR ORNAMENTAL HORTICULTURE COURSE

Name and Description	Number Recommended	Number on Hand
Greenhouse - 20' x 100'	1	
Potting Room - 18' x 20'	1	
Lath House - 35' x 55'	1	
Potting Room Storage - 5' x 12'	1	
Soil and Equipment Storage (covered shed) 14' x 36'	1	
Fenced area to enclose greenhouse, lath house, flower beds, hot beds, cold frames, nursery area, and turf management area - 2 acres	1	
Student work benches - 3' x 20'	3	
Teacher's work bench with sink	1	
Horticultural refrigerator	1	
Seeder - hand operated	1	
Axe	1	
Projector - slide and film strip	1	
Screen - movie - 5' (flat matt)	1	
Overhead projector - Viewgraph	1	
Duplicator	1	
Brooms (street)	3	
Cultivator - long handle (garden plow)	1	
Dusters - Knapsack	2	
Edgers - lawn	3	
Hoes - nursery	6	
Knives - cutting	20	
Rakes - lawn (landscaping type - magnesium)	6	
Rakes - garden - steel	6	
Roller - water ballast - 24"	1	

Name and Description (cont.)	Number Recommended	Number on Hand
Cub Cadet Tractor 10 hp. or equivalent (Gravely)	1	
Mower 3 blade 42" rotary	1	
Disk harrow, single (or Rototiller for Gravely)	1	
Plow 10" (or Rotary plow for Gravely)	1	
Cultivator	1	
Scarifier	1	
Blade (dozer)	1	
Blade (scraper)	1	
Cart Dump bed 800 lb. capacity (or trailer)	1	
Mower - engine driven reel type	1	
Mower - engine driven rotary type	1	
Rototiller - 5 hp.	1	
Sharpener - lawn mower	1	
Shears - grass	6	
Shears - pruning	10	
Spades - nursery	5	
Sprayers - knapsack - 3 gal.	4	
Sprayer - power - 12 1/2 gal. (for Gravely 20 ga., 500# pressure)	1	
Spreader - lime, fertilizer with tractor hitch	1	
Wheelbarrows - rubber tire	2	
Bar - crow and tamping combination - 6 ' homemade	2	
Digger - post hole, long handle - 9"	2	
Hoses, water and fertilizer - 3/4"	200'	
Knives - budding	15	
Shovels - Round point, long handle	5	
Round point, short handle	5	

Name and Description (cont.)	Number Recommended	Number on Hand
Square point, long handle	5	
Shears, pruning	15	
Snips - pruning	12	
Shears, grass 6"	6	
Shears - pruning, long handle	2	
Sod cutter	1	
Saw pruning 20"	6	
Ball and burlapping shovels	5	
Lopping shears	10	
Hedge shears	10	
Saw pruning long handled 12'	2	
Hedge clipper 8"	4	
Hedge clipper (electric) 16"	2	
Grass Hook	6	
Mattock	2	
Pick	2	
Fork (spading)	2	
Trowels	12	
Shear can	2	
Labler plant	1	
Lattern (Wax melter)	1	
Tree trimmer 12'	1	
Sprinkling can	2	
Soil sterilizer	1	
Bulb planters - hand type and long handle (2 each)	4	
Root feeders - pipe type	2	
Heating cables and thermostats - 120' length (30 sq. ft.)		

Name and Description (cont.)	Number Recommended	Number on Hand
Soil testing kit - (Sudbury or equivalent)	2	
Compost grinder - 6 hp.	1	
Irrigation system - sprinkler with booster pump	1	
Truck - 1/2 or 3/4 ton	1	
Electric extension cord - 25'	2	
Water breakers and tubing (goes on end of hose)	2	
Water hoses 3/4", 25' each	2	
Misting time clock, connections, and pipe for propagating bed	1	
Boards - Drawing (17" x 22")	16	
Scale (architects) plastic (molded)	16	
Set - drawing	16	
T-Squares	16	
Cans - Filler, oil - 1 qt. and 2 qt. each	1	
Cans - Gasoline, safety - size optional 2 gal.	2	
Funnel with screen for filling fuel tank	2	
Extinguisher, fire SS-15	2	
Oiler, hand	2	
Wire stretcher 4-pulley roller - bearing stretcher hoist	1	
Cans - Oiler - squirt - assorted sizes	3	